

REMARKS/RESPONSE

This is in response to the Notification To Comply With Requirements For Patent Applications Containing Nucleotide and/or Amino Acid Sequence Disclosures, dated July 1, 2005.

Applicants respectfully submit herewith a replacement paper copy of the "Sequence Listing" which conforms to 37 CFR §§ 1.821-1.825, a substitute diskette of the "Sequence Listing" in Computer Readable Form, along with a Statement to Support Filing and Submission in Accordance with 37 CFR §§ 1.821 through 1.825. Applicants believe that the application is in compliance with the sequence listing requirements set forth by 37 CFR §§ 1.821 through 1.825. No new matter has been added. Entry of this Sequence Listing into the application is requested.

Applicants are submitting their response herewith within the two-month response period set to expire on December 2, 2006. Applicants believe that no fees are due. However, if a fee is due, the Director is hereby authorized to charge any deficiency in the fees filed, asserted to be filed or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Deposit Account No. 03-2775, under Order No. 12810-00067-US from which the undersigned is authorized to draw.

Respectfully submitted,

By Roberte Makowski
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499401

SEQUENCE LISTING

<110> Kogel, Karl-Heinz
 Huckelhoven, Ralph
 Trujillo, Marco

<120> Method for Obtaining the pathogenic resistance in plants

<130> 12810-000067-US

<140> US 10/522,106

<141> 2005-01-24

<160> 24

<170> PatentIn version 3.3

<210> 1

<211> 337

<212> DNA

<213> Hordeum vulgare

<220>

<221> CDS

<222> (2)..(337)

<223> coding for NADPH oxidase (fragment)

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att gag atg cac aac tat ctc aca agt gtt tat gag gaa ggg gat gct 97
 Ile Glu Met His Asn Tyr Leu Thr Ser Val Tyr Glu Glu Gly Asp Ala

20 25 30

cgg tca gca ctc atc aca atg ctg caa gct ctc aac cat gcc aag aat 145
 Arg Ser Ala Leu Ile Thr Met Leu Gln Ala Leu Asn His Ala Lys Asn

35 40 45

ggt gtc gat gta gtg tct ggm act cga gtc cgg aca cat ttt gca aga 193
 Gly Val Asp Val Val Ser Xaa Thr Arg Val Arg Thr His Phe Ala Arg

50 55 60

cca aat ttt aag agg gtg ctg tct aag gta gcc gcc aaa cat cct tat 241
 Pro Asn Phe Lys Arg Val Leu Ser Lys Val Ala Ala Lys His Pro Tyr

65 70 75 80

gcc aag ata gga gtg ttc tat tgc gga gct cca gtt ctg gcg cag gaa 289
 Ala Lys Ile Gly Val Phe Tyr Cys Gly Ala Pro Val Leu Ala Gln Glu

85 90 95

cta agc aac ctt tgc cat gag ttc aat ggc aaa tgc acg aca aaa ttc 337
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<210> 2

<211> 112

<212> PRT

<213> Hordeum vulgare

<220>

<221> misc_feature

<222> (55)..(55)

<223> The 'Xaa' at location 55 stands for Gly.

<400> 2

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Arg Ser Ala Leu Ile Thr Met Leu Gln Ala	Leu Asn His Ala Lys Asn		
35	40	45	
Gly Val Asp Val Val Ser Xaa Thr Arg Val Arg	Thr His Phe Ala Arg		
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Pro Asn Phe Lys Arg Val Leu Ser Lys Val Ala	Ala Lys His Pro Tyr		
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Ala Lys Ile Gly Val Phe Tyr Cys Gly Ala Pro	Val Leu Ala Gln Glu		
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<210> 3
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<212> DNA
<213> *Oryza sativa*

<220>
<221> CDS
<222> (1)..(2829)
<223> coding for NADPH oxidase

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tcc gac ttc gcc gaa tgc atc ggg atg acg gaa tcg aag gag ttc gcg	672
Ser Asp Phe Ala Glu Cys Ile Gly Met Thr Glu Ser Lys Glu Phe Ala	
210 215 220	
ctc gag ctg ttc gac acg ctg agc cgcc cga cga cag atg aag gtg gac	720
Leu Glu Leu Phe Asp Thr Leu Ser Arg Arg Gln Met Lys Val Asp	
225 230 235 240	
acg att aac aag gat gaa ctc cgc gag atc tgg cag cag atc acc gat	768
Thr Ile Asn Lys Asp Glu Leu Arg Glu Ile Trp Gln Gln Ile Thr Asp	
245 250 255	
aac agc ttc gac tcc cgt ctc caa atc ttc ttc gaa atg gtg gat aag	816
Asn Ser Phe Asp Ser Arg Leu Gln Ile Phe Phe Glu Met Val Asp Lys	
260 265 270	
aac gcg gac ggc cgcc att acg gag gcg gag gtg aaa gag att att atg	864
Asn Ala Asp Gly Arg Ile Thr Glu Ala Glu Val Lys Glu Ile Ile Met	
275 280 285	
ttg agc gcg tct gcc aat aaa ctg tcg agg ctt aag gag caa gca gaa	912
Leu Ser Ala Ser Ala Asn Lys Leu Ser Arg Leu Lys Glu Gln Ala Glu	
290 295 300	
gag tac gcc gct ttg atc atg gag gag ctt gat cct gaa ggg ctc ggc	960
Glu Tyr Ala Ala Leu Ile Met Glu Glu Leu Asp Pro Glu Gly Leu Gly	
305 310 315 320	
tac att gag cta tgg caa ttg gag aca ctt ctg ttg cag aaa gat acc	1008
Tyr Ile Glu Leu Trp Gln Leu Glu Thr Leu Leu Gln Lys Asp Thr	
325 330 335	
tat atg aac tat agt cag gcc ctt agt tac aca agc caa gca ctg agc	1056
Tyr Met Asn Tyr Ser Gln Ala Leu Ser Tyr Thr Ser Gln Ala Leu Ser	
340 345 350	
cag aat ctt gca ggg cta agg aag aag agt tca atc cgc aaa ata agc	1104
Gln Asn Leu Ala Gly Leu Arg Lys Lys Ser Ser Ile Arg Lys Ile Ser	
355 360 365	
acc tct tta agc tac tat ttc gag gac aac tgg aaa cgt tta tgg gtg	1152
Thr Ser Leu Ser Tyr Tyr Phe Glu Asp Asn Trp Lys Arg Leu Trp Val	
370 375 380	
ctt gca ttg tgg att ggg ata atg gct gga ctg ttc acc tgg aaa ttc	1200
Leu Ala Leu Trp Ile Gly Ile Met Ala Gly Leu Phe Thr Trp Lys Phe	
385 390 395 400	
atg cag tat cgt aac cga tat gtc ttt gat gtg atg ggc tac tgt gtc	1248
Met Gln Tyr Arg Asn Arg Tyr Val Phe Asp Val Met Gly Tyr Cys Val	
405 410 415	
aca aca gca aaa gga gct gct gaa acc cta aag ctg aat atg gca att	1296
Thr Thr Ala Lys Gly Ala Ala Glu Thr Leu Lys Leu Asn Met Ala Ile	
420 425 430	
atc ctc ctg cca gta tgc cgt aac acc att act tgg ttg cga agt aca	1344
Ile Leu Leu Pro Val Cys Arg Asn Thr Ile Thr Trp Leu Arg Ser Thr	
435 440 445	
agg gct gca cgcc gca cta cct ttt gat gac aac atc aac ttc cac aag	1392
Arg Ala Ala Arg Ala Leu Pro Phe Asp Asp Asn Ile Asn Phe His Lys	
450 455 460	
act att gca gca gca att gtg gtt ggt ata atc ctc cat gca ggg aac	1440
Thr Ile Ala Ala Ile Val Val Gly Ile Ile Leu His Ala Gly Asn	
465 470 475 480	
cac ctt gta tgc gat ttt cca cgcc tta ata aaa tca tca gat gag aag	1488
His Leu Val Cys Asp Phe Pro Arg Leu Ile Lys Ser Ser Asp Glu Lys	
485 490 495	
tat gct cct ttg ggc cag tat ttt ggg gaa ata aag cca aca tat ttt	1536
Tyr Ala Pro Leu Gly Gln Tyr Phe Gly Glu Ile Lys Pro Thr Tyr Phe	
500 505 510	
aca ttg gtc aaa gga gtg gag ggc atc act ggg gta atc atg gtt gta	1584

Thr Leu Val Lys Gly Val Glu Gly Ile Thr Gly Val Ile Met Val Val		
515 520 525		
tgc atg ata att gct ttt act cta gca acc cgg tgg ttc cgc cgt agc	1632	
Cys Met Ile Ile Ala Phe Thr Leu Ala Thr Arg Trp Phe Arg Arg Ser		
530 535 540		
ttg gtt aag ctt cca agg cca ttt gac aaa ctg act ggc ttc aat gcc	1680	
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545 550 555 560		
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Phe Trp Tyr Ser His His Leu Phe Ile Ile Val Tyr Ile Ala Leu Ile		
565 570 575		
gtt cat gga gag tgt cta tac ctt att cat gtc tgg tac aga aga acg	1776	
Val His Gly Glu Cys Leu Tyr Leu Ile His Val Trp Tyr Arg Arg Thr		
580 585 590		
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Thr Trp Met Tyr Leu Ser Val Pro Val Cys Leu Tyr Val Gly Glu Arg		
595 600 605		
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Ile Leu Arg Phe Phe Arg Ser Gly Ser Tyr Ser Val Arg Leu Leu Lys		
610 615 620		
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Val Ala Ile Tyr Pro Gly Asn Val Leu Thr Leu Gln Met Ser Lys Pro		
625 630 635 640		
ccc acg ttc cgt tac aag agt gga caa tat atg ttt gtt caa tgt cca	1968	
Pro Thr Phe Arg Tyr Lys Ser Gly Gln Tyr Met Phe Val Gln Cys Pro		
645 650 655		
gca gtg tct ccc ttt gaa tgg cat ccc ttc tca att act tca gca cct	2016	
Ala Val Ser Pro Phe Glu Trp His Pro Phe Ser Ile Thr Ser Ala Pro		
660 665 670		
ggg gat gac tac ctc agc att cat gtt cga caa ctt ggt gat tgg aca	2064	
Gly Asp Asp Tyr Leu Ser Ile His Val Arg Gln Leu Gly Asp Trp Thr		
675 680 685		
cga gaa ctc aag aga gta ttt gct gca gct tgt gag ccc cca gcg ggt	2112	
Arg Glu Leu Lys Arg Val Phe Ala Ala Ala Cys Glu Pro Pro Ala Gly		
690 695 700		
ggt aaa agc ggc ctt ctt agg gca gat gag aca act aag aaa atc tta	2160	
Gly Lys Ser Gly Leu Leu Arg Ala Asp Glu Thr Thr Lys Lys Ile Leu		
705 710 715 720		
ccc aag ctt ctg att gat gga ccg tat ggt tct cct gct cag gat tac	2208	
Pro Lys Leu Ile Asp Gly Pro Tyr Gly Ser Pro Ala Gln Asp Tyr		
725 730 735		
agc aag tat gat gtt tta tta ctt gtt gga tta gga att ggt gcg aca	2256	
Ser Lys Tyr Asp Val Leu Leu Val Gly Leu Gly Ile Gly Ala Thr		
740 745 750		
ccc ttt att agc ata tta aaa gat ctt ctg aat aac atc atc aaa atg	2304	
Pro Phe Ile Ser Ile Leu Lys Asp Leu Leu Asn Asn Ile Ile Lys Met		
755 760 765		
gag gaa gag gag gat gct act gat ctt tat cca cca atg ggt cgg	2352	
Glu Glu Glu Asp Ala Ser Thr Asp Leu Tyr Pro Pro Met Gly Arg		
770 775 780		
aat aag cca cat gtt gat ctg ggc aca ctt atg acg att acc tca aga	2400	
Asn Lys Pro His Val Asp Leu Gly Thr Leu Met Thr Ile Thr Ser Arg		
785 790 795 800		
cca aag aag atc ttg aag acc aca aat gct tac ttt tac tgg gtg aca	2448	
Pro Lys Lys Ile Leu Lys Thr Thr Asn Ala Tyr Phe Tyr Trp Val Thr		
805 810 815		
cgt gag caa ggc tct ttt gat tgg ttc aaa gga gtc atg aat gaa att	2496	
Arg Glu Gln Gly Ser Phe Asp Trp Phe Lys Gly Val Met Asn Glu Ile		
820 825 830		
gct gac ttg gat caa agg aat atc att gag atg cac aac tac cta aca	2544	
Ala Asp Leu Asp Gln Arg Asn Ile Ile Glu Met His Asn Tyr Leu Thr		

835	840	845	
agc gtc tat gag gag ggg gat	gcc agg tca gca ctc atc acc atg ctc		2592
Ser Val Tyr Glu Glu Gly Asp	Ala Arg Ser Ala Leu Ile Thr Met Leu		
850	855	860	
caa gct ctg aac cat gcc aag aat gga gtt gat att gtc tct ggg aca			2640
Gln Ala Leu Asn His Ala Lys Asn Gly Val Asp Ile Val Ser Gly Thr			
865	870	875	880
aaa gtc cgg aca cat ttt gca cga cca aat tgg aga aag gtc ctt tct			2688
Lys Val Arg Thr His Phe Ala Arg Pro Asn Trp Arg Lys Val Leu Ser			
885	890	895	
aaa att tcc tcc aag cat cca tat gcc aaa ata ggt gta ttc tac tgt			2736
Lys Ile Ser Ser Lys His Pro Tyr Ala Lys Ile Gly Val Phe Tyr Cys			
900	905	910	
gga gct cca gtc ctg gca caa gaa cta agc aaa ctt tgc cat gaa ttc			2784
Gly Ala Pro Val Leu Ala Gln Glu Leu Ser Lys Leu Cys His Glu Phe			
915	920	925	
aac ggg aaa tgc aca acg aag ttc gaa ttc cat aag gag cat ttc tga			2832
Asn Gly Lys Cys Thr Thr Lys Phe Glu Phe His Lys Glu His Phe			
930	935	940	

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 <213> Oryza sativa

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 Asp Arg Ser Ser Asp Asp Gly Glu Glu Leu Val Glu Val Thr Leu Asp
 35 40 45
 Leu Gln Asp Asp Asp Thr Ile Val Leu Arg Ser Val Glu Pro Ala Ala
 50 55 60
 Ala Ala Ala Ala Gly Val Gly Ala Gly Ala Gly Ala Ala Ser Ala Arg
 65 70 75 80
 Gly Glu Leu Thr Gly Gly Pro Ser Ser Ser Ser Arg Ser Arg Ser
 85 90 95
 Pro Ser Ile Arg Arg Ser Ser Ser His Arg Leu Leu Gln Phe Ser Gln
 100 105 110
 Glu Leu Lys Ala Glu Ala Met Ala Arg Ala Arg Gln Phe Ser Gln Asp
 115 120 125
 Leu Thr Lys Arg Phe Gly Arg Ser His Ser Arg Ser Glu Ala Gln Ala
 130 135 140
 Pro Ser Gly Leu Glu Ser Ala Leu Ala Ala Arg Ala Ala Arg Arg Gln
 145 150 155 160
 Arg Ala Gln Leu Asp Arg Thr Arg Ser Gly Ala His Lys Ala Leu Arg
 165 170 175
 Gly Leu Arg Phe Ile Ser Ser Asn Lys Ala Asn Asn Ala Trp Met Glu
 180 185 190
 Val Gln Ala Asn Phe Asp Arg Leu Ala Arg Asp Gly Tyr Leu Ser Arg
 195 200 205
 Ser Asp Phe Ala Glu Cys Ile Gly Met Thr Glu Ser Lys Glu Phe Ala
 210 215 220
 Leu Glu Leu Phe Asp Thr Leu Ser Arg Arg Gln Met Lys Val Asp
 225 230 235 240
 Thr Ile Asn Lys Asp Glu Leu Arg Glu Ile Trp Gln Gln Ile Thr Asp
 245 250 255
 Asn Ser Phe Asp Ser Arg Leu Gln Ile Phe Phe Glu Met Val Asp Lys
 260 265 270
 Asn Ala Asp Gly Arg Ile Thr Glu Ala Glu Val Lys Glu Ile Ile Met

275	280	285	
Leu Ser Ala Ser Ala Asn Lys	Leu Ser Arg	Leu Lys Glu Gln Ala Glu	
290	295	300	
Glu Tyr Ala Ala Leu Ile Met	Glu Glu Leu Asp	Pro Glu Gly Leu Gly	
305	310	315	320
Tyr Ile Glu Leu Trp Gln Leu Glu	Thr Leu Leu Gln Lys	Asp Thr	
325	330	335	
Tyr Met Asn Tyr Ser Gln Ala	Leu Ser Tyr Thr Ser Gln	Ala Leu Ser	
340	345	350	
Gln Asn Leu Ala Gly Leu Arg	Lys Lys Ser Ser Ile Arg	Lys Ile Ser	
355	360	365	
Thr Ser Leu Ser Tyr Tyr	Phe Glu Asp Asn Trp	Lys Arg Leu Trp Val	
370	375	380	
Leu Ala Leu Trp Ile Gly Ile Met	Ala Gly Leu Phe	Thr Trp Lys Phe	
385	390	395	400
Met Gln Tyr Arg Asn Arg Tyr	Val Phe Asp Val Met	Gly Tyr Cys Val	
405	410	415	
Thr Thr Ala Lys Gly Ala Ala	Glu Thr Leu Lys Leu Asn	Met Ala Ile	
420	425	430	
Ile Leu Leu Pro Val Cys Arg	Asn Thr Ile Thr Trp	Leu Arg Ser Thr	
435	440	445	
Arg Ala Ala Arg Ala Leu	Pro Phe Asp Asp Asn	Ile Asn Phe His Lys	
450	455	460	
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485	490	495	
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Phe Trp Tyr Ser His His	Leu Phe Ile Ile Val	Tyr Ile Ala Leu Ile	
565	570	575	
Val His Gly Glu Cys Leu	Tyr Leu Ile His Val	Trp Tyr Arg Arg Thr	
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Thr Trp Met Tyr Leu Ser	Val Pro Val Cys Leu	Tyr Val Gly Glu Arg	
595	600	605	
Ile Leu Arg Phe Phe Arg	Ser Gly Ser Tyr Ser	Val Arg Leu Leu Lys	
610	615	620	
Val Ala Ile Tyr Pro Gly	Asn Val Leu Thr Leu	Gln Met Ser Lys Pro	
625	630	635	640
Pro Thr Phe Arg Tyr	Lys Ser Gly Gln	Tyr Met Phe Val Gln Cys Pro	
645	650	655	
Ala Val Ser Pro Phe Glu	Trp His Pro Phe Ser	Ile Thr Ser Ala Pro	
660	665	670	
Gly Asp Asp Tyr Leu Ser	Ile His Val Arg Gln	Leu Gly Asp Trp Thr	
675	680	685	
Arg Glu Leu Lys Arg Val	Phe Ala Ala Ala	Cys Glu Pro Pro Ala Gly	
690	695	700	
Gly Lys Ser Gly Leu Leu	Arg Ala Asp Glu	Thr Thr Lys Lys Ile Leu	
705	710	715	720
Pro Lys Leu Leu Ile Asp	Gly Pro Tyr	Gly Ser Pro Ala Gln Asp Tyr	
725	730	735	
Ser Lys Tyr Asp Val Leu	Leu Val Gly	Leu Gly Ile Gly Ala Thr	
740	745	750	
Pro Phe Ile Ser Ile Leu	Lys Asp Leu Leu Asn	Asn Ile Ile Lys Met	
755	760	765	

Glu Glu Glu Glu Asp Ala Ser Thr Asp Leu Tyr Pro Pro Met Gly Arg
 770 775 780
 Asn Lys Pro His Val Asp Leu Gly Thr Leu Met Thr Ile Thr Ser Arg
 785 790 795 800
 Pro Lys Lys Ile Leu Lys Thr Thr Asn Ala Tyr Phe Tyr Trp Val Thr
 805 810 815
 Arg Glu Gln Gly Ser Phe Asp Trp Phe Lys Gly Val Met Asn Glu Ile
 820 825 830
 Ala Asp Leu Asp Gln Arg Asn Ile Ile Glu Met His Asn Tyr Leu Thr
 835 840 845
 Ser Val Tyr Glu Glu Gly Asp Ala Arg Ser Ala Leu Ile Thr Met Leu
 850 855 860
 Gln Ala Leu Asn His Ala Lys Asn Gly Val Asp Ile Val Ser Gly Thr
 865 870 875 880
 Lys Val Arg Thr His Phe Ala Arg Pro Asn Trp Arg Lys Val Leu Ser
 885 890 895
 Lys Ile Ser Ser Lys His Pro Tyr Ala Lys Ile Gly Val Phe Tyr Cys
 900 905 910
 Gly Ala Pro Val Leu Ala Gln Glu Leu Ser Lys Leu Cys His Glu Phe
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 Asn Gly Lys Cys Thr Thr Lys Phe Glu Phe His Lys Glu His Phe
 930 935 940

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 Ser Ser Asp Lys Asp Phe Ser Gly Glu Leu Ser Pro Gly Ala Asp Ser
 20 25 30
 ggc tat aat tcc ggt ttt gct tcc gag gag ttt gtt gaa gtc acg ctt 144
 Gly Tyr Asn Ser Gly Phe Ala Ser Glu Glu Phe Val Glu Val Thr Leu
 35 40 45
 gat ctt cag gat gat gat acc att att cta cgg acg gtt gaa ccg gct 192
 Asp Leu Gln Asp Asp Asp Thr Ile Ile Leu Arg Ser Val Glu Pro Ala
 50 55 60
 act gtg att aac att gac gct cct gat ctt ccc gcc gga gtc ggt att 240
 Thr Val Ile Asn Ile Asp Ala Pro Asp Leu Pro Ala Gly Val Gly Ile
 65 70 75 80
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 Ser Gly Val Ser Ile Glu Thr Pro Thr Ser Ala Ser Val Ser Glu Ser
 85 90 95
 cga tcg ccg acg atc cgc cgg agt tca tct agt aaa ctt cgt cag ttt 336
 Arg Ser Pro Thr Ile Arg Arg Ser Ser Ser Lys Leu Arg Gln Phe
 100 105 110
 tca cag gag ttg aaa gct gag gcg gtt gcg aaa gcg agg cag ttt tca 384
 Ser Gln Glu Leu Lys Ala Glu Ala Val Ala Lys Ala Arg Gln Phe Ser
 115 120 125
 caa gag ctg aag gcg gag tta agg aga ttc tca tgg agc cat ggg cat 432
 Gln Glu Leu Lys Ala Glu Leu Arg Arg Phe Ser Trp Ser His Gly His
 130 135 140

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Ala Ser Arg Ala Phe Ser Pro Ser Ser Phe Phe Gln Asn Ala Val Val	
145 150 155 160	
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Gly Thr Gly Asn Gly Val Asp Ser Ala Leu Ala Ala Arg Ala Leu Arg	
165 170 175	
cgg caa cgc gcg cag ctt gat cgg act cgt tcc agc gcc cat aga gct	576
Arg Gln Arg Ala Gln Leu Asp Arg Thr Arg Ser Ser Ala His Arg Ala	
180 185 190	
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Leu Arg Arg Leu Lys Phe Ile Ser Asn Asn Lys Thr Asn Gly Trp Asn	
195 200 205	
gaa gtt gaa aac aat ttc tca aag ctc gct aaa gac ggt tat ctt tac	672
Glu Val Glu Asn Asn Phe Ser Lys Leu Ala Lys Asp Gly Tyr Leu Tyr	
210 215 220	
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Arg Ser Asp Phe Ala Gln Cys Ile Gly Met Lys Asp Ser Lys Glu Phe	
225 230 235 240	
gca ttg gaa tta ttt gat gct ttg agt aga aga aga aga tta aag gtt	768
Ala Leu Glu Leu Phe Asp Ala Leu Ser Arg Arg Arg Arg Leu Lys Val	
245 250 255	
gat aaa att agc aag gag gaa ttg tat gag tac tgg tct caa atc acc	816
Asp Lys Ile Ser Lys Glu Glu Leu Tyr Glu Tyr Trp Ser Gln Ile Thr	
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Asp Gln Ser Phe Asp Ser Arg Leu Gln Ile Ser Phe Asp Met Val Asp	
275 280 285	
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Lys Asn Glu Asp Gly Arg Ile Ala Glu Glu Glu Val Lys Glu Ile Ile	
290 295 300	
atg cta agt gca tct gca aac aag tta tca aga tta aaa gaa caa gca	960
Met Leu Ser Ala Ser Ala Asn Lys Leu Ser Arg Leu Lys Glu Gln Ala	
305 310 315 320	
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Glu Glu Tyr Ala Ala Leu Ile Met Glu Glu Leu Asp Pro Glu Arg Leu	
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ggc tac att gag cta tgg cag ctg gaa aca ctt ctc ctc caa aag gac	1056
Gly Tyr Ile Glu Leu Trp Gln Leu Glu Thr Leu Leu Gln Lys Asp	
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Ser Gln Asn Leu His Gly Leu Arg Lys Ser Pro Ile Lys Arg Met	
370 375 380	
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Ser Thr Lys Leu Val Tyr Ser Leu Gln Glu Asn Trp Lys Arg Ile Trp	
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Phe Tyr Gln Tyr Lys Asn Lys Ser Ala Phe Arg Val Met Gly Tyr Cys	
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ctt gtc acg gct aag ggc gct gct gag act ctc aag ttc aac atg gct	1344
Leu Val Thr Ala Lys Gly Ala Ala Glu Thr Leu Lys Phe Asn Met Ala	
435 440 445	
ctt ata tta ttg cca gta tgc aga aac act att aca tgg ctc agg tcc	1392
Leu Ile Leu Leu Pro Val Cys Arg Asn Thr Ile Thr Trp Leu Arg Ser	
450 455 460	
acc aag ttg agc cat ttt gta ccc ttt gac gac aac atc aac ttt cac	1440

Thr Lys Leu Ser His Phe Val Pro Phe Asp Asp Asn Ile Asn Phe His		
465 470 475 480		
aag act gtc gct gca gcc att gtc act ggt atc ata ctc cat gct ggt		1488
Lys Thr Val Ala Ala Ala Ile Val Thr Gly Ile Ile Leu His Ala Gly		
485 490 495		
aac cat ctt gta tgt gat ttc cca agg ctt ata cat gca gat gat caa		1536
Asn His Leu Val Cys Asp Phe Pro Arg Leu Ile His Ala Asp Asp Gln		
500 505 510		
gat tat caa agt ttt ttg tcg aat gat ttt ggc caa agt aag cct gga		1584
Asp Tyr Gln Ser Phe Leu Ser Asn Asp Phe Gly Gln Ser Lys Pro Gly		
515 520 525		
tac ata gac ctt gtt aaa gga gtt gag ggt gtg acg gga ata ata atg		1632
Tyr Ile Asp Leu Val Lys Gly Val Glu Gly Val Thr Gly Ile Ile Met		
530 535 540		
gta atc ctt atg gcc att gct ttc act ctt gct aca cga tgg ttt aga		1680
Val Ile Leu Met Ala Ile Ala Phe Thr Leu Ala Thr Arg Trp Phe Arg		
545 550 555 560		
cgg agc ctc att aag ttg ccc aaa cct ttt gat aga ctc act ggc ttc		1728
Arg Ser Leu Ile Lys Leu Pro Lys Pro Phe Asp Arg Leu Thr Gly Phe		
565 570 575		
aat gca ttc tgg tat tca cac cac ctt ctt gtc att gtc tac atc cta		1776
Asn Ala Phe Trp Tyr Ser His His Leu Leu Val Ile Val Tyr Ile Leu		
580 585 590		
ctg atc atc cat ggc acg ttc ctc ctt gtg cat aaa tgg tac tcc		1824
Leu Ile Ile His Gly Thr Phe Leu Phe Leu Val His Lys Trp Tyr Ser		
595 600 605		
aag acg acg tgg atg tat cta gca gtt cct gtg ctt ctc tac gca ggg		1872
Lys Thr Thr Trp Met Tyr Leu Ala Val Pro Val Leu Leu Tyr Ala Gly		
610 615 620		
gaa aga act ctt aga ttc ttc cgg tca ggc ttg tac act gtc cgg ctt		1920
Glu Arg Thr Leu Arg Phe Phe Arg Ser Gly Leu Tyr Thr Val Arg Leu		
625 630 635 640		
ctg aaa gta gca ata tat cct gga aat gtc ctc act cta caa atg tct		1968
Leu Lys Val Ala Ile Tyr Pro Gly Asn Val Leu Thr Leu Gln Met Ser		
645 650 655		
aag cct cct caa ttt cga tac aaa agt gga caa tat atg ttt gtc cag		2016
Lys Pro Pro Gln Phe Arg Tyr Lys Ser Gly Gln Tyr Met Phe Val Gln		
660 665 670		
tgt cca gct gtt tct cca ttc gag tgg cat cca ttt tcc att act tca		2064
Cys Pro Ala Val Ser Pro Phe Glu Trp His Pro Phe Ser Ile Thr Ser		
675 680 685		
gct cct ggg gat gac tac ttg agc att cac atc cgg caa ctt ggt gac		2112
Ala Pro Gly Asp Asp Tyr Leu Ser Ile His Ile Arg Gln Leu Gly Asp		
690 695 700		
tgg act caa gaa ctc aag cgg gtc ttt tct gag gct tgc gag cgg cca		2160
Trp Thr Gln Glu Leu Lys Arg Val Phe Ser Glu Ala Cys Glu Arg Pro		
705 710 715 720		
gag gct gga aag agt ggc ctg ctc aga gct gac gaa aac act aag aaa		2208
Glu Ala Gly Lys Ser Gly Leu Leu Arg Ala Asp Glu Asn Thr Lys Lys		
725 730 735		
agt ttg cca aag cta tta ata gat gga cct tac gga gct cca gca caa		2256
Ser Leu Pro Lys Leu Ile Asp Gly Pro Tyr Gly Ala Pro Ala Gln		
740 745 750		
gat tac cga aaa tat gat gtc ttg ctg ctt gtt ggt ctt ggc att gga		2304
Asp Tyr Arg Lys Tyr Asp Val Leu Leu Leu Val Gly Leu Gly Ile Gly		
755 760 765		
gca acg ccg ttc ata agt atc ctg aaa gac ttg ctc gtt aac atc gtg		2352
Ala Thr Pro Phe Ile Ser Ile Leu Lys Asp Leu Leu Val Asn Ile Val		
770 775 780		
aaa atg gag gag caa gca gat tta gcc tca gat ttc agt ggg aac tca		2400
Lys Met Glu Glu Gln Ala Asp Leu Ala Ser Asp Phe Ser Gly Asn Ser		

785	790	795	800	
gac atg agc gtt gcg aca agt gaa caa cca gct ctc aac aag att tct				2448
Asp Met Ser Val Ala Thr Ser Glu Gln Pro Ala Leu Asn Lys Ile Ser				
805	810	815		
ctg aaa agg aga aag agc act cta aga acc aca aat gca tat ttt tat				2496
Leu Lys Arg Arg Lys Ser Thr Leu Arg Thr Thr Asn Ala Tyr Phe Tyr				
820	825	830		
tgg gtg acc cgg gag caa gga tca ttt gat tgg ttc aaa ggc gtt atg				2544
Trp Val Thr Arg Glu Gln Gly Ser Phe Asp Trp Phe Lys Gly Val Met				
835	840	845		
aac gaa gtg gct gaa ctt gat caa agg ggg gtc atc gag atg cat aac				2592
Asn Glu Val Ala Glu Leu Asp Gln Arg Gly Val Ile Glu Met His Asn				
850	855	860		
tac ttg acg agt gtt tat gag gaa ggg gat gct cgt tca gct ctc att				2640
Tyr Leu Thr Ser Val Tyr Glu Glu Gly Asp Ala Arg Ser Ala Leu Ile				
865	870	875	880	
acc atg gtc cag gca ctt aac cat gct aag aat ggg gtt gat att gta				2688
Thr Met Val Gln Ala Leu Asn His Ala Lys Asn Gly Val Asp Ile Val				
885	890	895		
tca ggc acc agg gtg agg aca cat ttt gct agg cca aat tgg aag aaa				2736
Ser Gly Thr Arg Val Arg Thr His Phe Ala Arg Pro Asn Trp Lys Lys				
900	905	910		
gta ttt tcc aag acc tta acc aag cat gca aat gca aga ata ggg gtt				2784
Val Phe Ser Lys Thr Leu Thr Lys His Ala Asn Ala Arg Ile Gly Val				
915	920	925		
ttc tac tgt ggt gca ccc gta tta gca aaa gaa ctc agc aaa ctc tgc				2832
Phe Tyr Cys Gly Ala Pro Val Leu Ala Lys Glu Leu Ser Lys Leu Cys				
930	935	940		
aaa gag tat aat caa aag ggt gca aca aag ttc gag ttt cac aaa gaa				2880
Lys Glu Tyr Asn Gln Lys Gly Ala Thr Lys Phe Glu Phe His Lys Glu				
945	950	955	960	
cat ttt tag				2889
His Phe				

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<211> 962
<212> PRT
<213> Nicotiana tabacum

<400> 6				
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Ser Ser Asp Lys Asp Phe Ser Gly Glu Leu Ser Pro Gly Ala Asp Ser				
20	25	30		
Gly Tyr Asn Ser Gly Phe Ala Ser Glu Glu Phe Val Glu Val Thr Leu				
35	40	45		
Asp Leu Gln Asp Asp Asp Thr Ile Ile Leu Arg Ser Val Glu Pro Ala				
50	55	60		
Thr Val Ile Asn Ile Asp Ala Pro Asp Leu Pro Ala Gly Val Gly Ile				
65	70	75	80	
Ser Gly Val Ser Ile Glu Thr Pro Thr Ser Ala Ser Val Ser Glu Ser				
85	90	95		
Arg Ser Pro Thr Ile Arg Arg Ser Ser Ser Lys Leu Arg Gln Phe				
100	105	110		
Ser Gln Glu Leu Lys Ala Glu Ala Val Ala Lys Ala Arg Gln Phe Ser				
115	120	125		
Gln Glu Leu Lys Ala Glu Leu Arg Arg Phe Ser Trp Ser His Gly His				
130	135	140		
Ala Ser Arg Ala Phe Ser Pro Ser Ser Phe Phe Gln Asn Ala Val Val				
145	150	155	160	
Gly Thr Gly Asn Gly Val Asp Ser Ala Leu Ala Arg Ala Leu Arg				

165	170	175
Arg Gln Arg Ala Gln Leu Asp Arg Thr Arg Ser Ser Ala His	Arg Ala	
180	185	190
Leu Arg Arg Leu Lys Phe Ile Ser Asn Asn Lys Thr Asn Gly	Trp Asn	
195	200	205
Glu Val Glu Asn Asn Phe Ser Lys Leu Ala Lys Asp Gly Tyr	Leu Tyr	
210	215	220
Arg Ser Asp Phe Ala Gln Cys Ile Gly Met Lys Asp Ser Lys	Glu Phe	
225	230	235
Ala Leu Glu Leu Phe Asp Ala Leu Ser Arg Arg Arg Arg Leu	Lys Val	
245	250	255
Asp Lys Ile Ser Lys Glu Glu Leu Tyr Glu Tyr Trp Ser Gln	Ile Thr	
260	265	270
Asp Gln Ser Phe Asp Ser Arg Leu Gln Ile Ser Phe Asp Met	Val Asp	
275	280	285
Lys Asn Glu Asp Gly Arg Ile Ala Glu Glu Glu Val Lys	Glu Ile Ile	
290	295	300
Met Leu Ser Ala Ser Ala Asn Lys Leu Ser Arg Leu Lys	Glu Gln Ala	
305	310	315
Glu Glu Tyr Ala Ala Leu Ile Met Glu Glu Leu Asp Pro	Glu Arg Leu	
325	330	335
Gly Tyr Ile Glu Leu Trp Gln Leu Glu Thr Leu Leu Gln	Lys Asp	
340	345	350
Thr Tyr Leu Asn Tyr Ser Gln Ala Leu Ser Tyr Thr Ser	Gln Ala Leu	
355	360	365
Ser Gln Asn Leu His Gly Leu Arg Lys Lys Ser Pro	Ile Lys Arg Met	
370	375	380
Ser Thr Lys Leu Val Tyr Ser Leu Gln Glu Asn Trp Lys	Arg Ile Trp	
385	390	395
Val Leu Thr Leu Trp Ile Leu Ile Met Ile Gly Leu Phe	Leu Trp Lys	
405	410	415
Phe Tyr Gln Tyr Lys Asn Lys Ser Ala Phe Arg Val Met	Gly Tyr Cys	
420	425	430
Leu Val Thr Ala Lys Gly Ala Ala Glu Thr Leu Lys	Phe Asn Met Ala	
435	440	445
Leu Ile Leu Leu Pro Val Cys Arg Asn Thr Ile Thr Trp	Leu Arg Ser	
450	455	460
Thr Lys Leu Ser His Phe Val Pro Phe Asp Asp Asn Ile	Asn Phe His	
465	470	475
Lys Thr Val Ala Ala Ala Ile Val Thr Gly Ile Ile Leu	His Ala Gly	
485	490	495
Asn His Leu Val Cys Asp Phe Pro Arg Leu Ile His	Ala Asp Asp Gln	
500	505	510
Asp Tyr Gln Ser Phe Leu Ser Asn Asp Phe Gly	Gln Ser Lys Pro Gly	
515	520	525
Tyr Ile Asp Leu Val Lys Gly Val Glu Gly Val Thr	Gly Ile Ile Met	
530	535	540
Val Ile Leu Met Ala Ile Ala Phe Thr Leu Ala Thr Arg	Trp Phe Arg	
545	550	555
Arg Ser Leu Ile Lys Leu Pro Lys Pro Phe Asp Arg	Leu Thr Gly Phe	
565	570	575
Asn Ala Phe Trp Tyr Ser His His Leu Leu Val Ile	Val Tyr Ile Leu	
580	585	590
Leu Ile Ile His Gly Thr Phe Leu Phe Leu Val His	Lys Trp Tyr Ser	
595	600	605
Lys Thr Thr Trp Met Tyr Leu Ala Val Pro Val Leu	Leu Tyr Ala Gly	
610	615	620
Glu Arg Thr Leu Arg Phe Phe Arg Ser Gly Leu	Tyr Thr Val Arg Leu	
625	630	635
Leu Lys Val Ala Ile Tyr Pro Gly Asn Val Leu	Thr Leu Gln Met Ser	
645	650	655

Lys Pro Pro Gln Phe Arg Tyr Lys Ser Gly Gln Tyr Met Phe Val Gln
 660 665 670
 Cys Pro Ala Val Ser Pro Phe Glu Trp His Pro Phe Ser Ile Thr Ser
 675 680 685
 Ala Pro Gly Asp Asp Tyr Leu Ser Ile His Ile Arg Gln Leu Gly Asp
 690 695 700
 Trp Thr Gln Glu Leu Lys Arg Val Phe Ser Glu Ala Cys Glu Arg Pro
 705 710 715 720
 Glu Ala Gly Lys Ser Gly Leu Leu Arg Ala Asp Glu Asn Thr Lys Lys
 725 730 735
 Ser Leu Pro Lys Leu Leu Ile Asp Gly Pro Tyr Gly Ala Pro Ala Gln
 740 745 750
 Asp Tyr Arg Lys Tyr Asp Val Leu Leu Leu Val Gly Leu Gly Ile Gly
 755 760 765
 Ala Thr Pro Phe Ile Ser Ile Leu Lys Asp Leu Leu Val Asn Ile Val
 770 775 780
 Lys Met Glu Glu Gln Ala Asp Leu Ala Ser Asp Phe Ser Gly Asn Ser
 785 790 795 800
 Asp Met Ser Val Ala Thr Ser Glu Gln Pro Ala Leu Asn Lys Ile Ser
 805 810 815
 Leu Lys Arg Arg Lys Ser Thr Leu Arg Thr Thr Asn Ala Tyr Phe Tyr
 820 825 830
 Trp Val Thr Arg Glu Gln Gly Ser Phe Asp Trp Phe Lys Gly Val Met
 835 840 845
 Asn Glu Val Ala Glu Leu Asp Gln Arg Gly Val Ile Glu Met His Asn
 850 855 860
 Tyr Leu Thr Ser Val Tyr Glu Glu Gly Asp Ala Arg Ser Ala Leu Ile
 865 870 875 880
 Thr Met Val Gln Ala Leu Asn His Ala Lys Asn Gly Val Asp Ile Val
 885 890 895
 Ser Gly Thr Arg Val Arg Thr His Phe Ala Arg Pro Asn Trp Lys Lys
 900 905 910
 Val Phe Ser Lys Thr Leu Thr Lys His Ala Asn Ala Arg Ile Gly Val
 915 920 925
 Phe Tyr Cys Gly Ala Pro Val Leu Ala Lys Glu Leu Ser Lys Leu Cys
 930 935 940
 Lys Glu Tyr Asn Gln Lys Gly Ala Thr Lys Phe Glu Phe His Lys Glu
 945 950 955 960
 His Phe

<210> 7
 <211> 3733
 <212> DNA
 <213> Solanum tuberosum

<220>
 <221> CDS
 <222> (92)..(2980)
 <223> coding for NADPH oxidase

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 tattttattna ttgtgtcttg atttggggaca a atg agg ggt tta cct ggg cat 112
 Met Arg Gly Leu Pro Gly His
 1 5
 gaa cgc cgg tgg acg tcg gat acg gta tct tcc ggc aag gat tta agt 160
 Glu Arg Arg Trp Thr Ser Asp Thr Val Ser Ser Gly Lys Asp Leu Ser
 10 15 20
 ggt gag tca tcg ccg gga act gat tcc ggg aat att tcc ggt ttt gct 208
 Gly Glu Ser Ser Pro Gly Thr Asp Ser Gly Asn Ile Ser Gly Phe Ala

25	30	35	
tcc gag gag ttt gtt gaa gtt ata ctt gat ctt cag gat gat gat acg			256
Ser Glu Glu Phe Val Glu Val Ile Leu Asp Leu Gln Asp Asp Asp Thr			
40	45	50	55
att att cta cgg agc gtt gaa ccg gct act gta atc aac att gat gct			304
Ile Ile Leu Arg Ser Val Glu Pro Ala Thr Val Ile Asn Ile Asp Ala			
60	65	70	
tct gat cct gct acc gga gtc ggt att ggt gga gta tcg att gaa act			352
Ser Asp Pro Ala Thr Gly Val Gly Ile Gly Gly Val Ser Ile Glu Thr			
75	80	85	
ccg gcg tcg ctg act tcg acg tcg gga act cga tcg ccg acg atg cgt			400
Pro Ala Ser Leu Thr Ser Thr Gly Thr Arg Ser Pro Thr Met Arg			
90	95	100	
cgg agt aca tcc aat aaa tta cgt cag ttt tca cag gag ttg aaa gct			448
Arg Ser Thr Ser Asn Lys Leu Arg Gln Phe Ser Gln Glu Leu Lys Ala			
105	110	115	
gag gct gtc gcg aaa gcg aag cat ttc tcg caa gag ctt aaa gcg gag			496
Glu Ala Val Ala Lys Ala Lys His Phe Ser Gln Glu Leu Lys Ala Glu			
120	125	130	135
cta agg aga ttc tca tgg agc cat gga cat gcg tct cgc act ttt tcg			544
Leu Arg Arg Phe Ser Trp Ser His Gly His Ala Ser Arg Thr Phe Ser			
140	145	150	
ccg gcg tcg ttt ttc caa aac gcc gtc gtc ggt aca ggc aac ggt gta			592
Pro Ala Ser Phe Phe Gln Asn Ala Val Val Gly Thr Gly Asn Gly Val			
155	160	165	
gat tcg gct tta gca gct cga gca tta cga cgg cag cgc gct cag ctc			640
Asp Ser Ala Leu Ala Ala Arg Ala Leu Arg Arg Gln Arg Ala Gln Leu			
170	175	180	
gat cgg act cgt tcc agc gct cac aag gct ctt cgt gga ctc aaa ttc			688
Asp Arg Thr Arg Ser Ser Ala His Lys Ala Leu Arg Gly Leu Lys Phe			
185	190	195	
atc agc aat aac aaa act aac gga tgg aat gaa gtt gaa aac aat ttt			736
Ile Ser Asn Asn Lys Thr Asn Gly Trp Asn Glu Val Glu Asn Asn Phe			
200	205	210	215
gct aag ctc gct aaa gac ggt tac ctt tat cgc tcc gat ttc gca caa			784
Ala Lys Leu Ala Lys Asp Gly Tyr Leu Tyr Arg Ser Asp Phe Ala Gln			
220	225	230	
tgc atc ggt atg aag gat tca aag gaa ttt gca ttg gaa ttg ttt gat			832
Cys Ile Gly Met Lys Asp Ser Lys Glu Phe Ala Leu Glu Leu Phe Asp			
235	240	245	
gct ttg agt aga aga aga ttg aag gtt gat aag att agc aaa gag			880
Ala Leu Ser Arg Arg Arg Leu Lys Val Asp Lys Ile Ser Lys Glu			
250	255	260	
gaa ttg tat gag tat tgg tct caa atc acc gat cag agt ttc gat tct			928
Glu Leu Tyr Glu Tyr Trp Ser Gln Ile Thr Asp Gln Ser Phe Asp Ser			
265	270	275	
ccg ctt cag atc ttc ttc gac atg gtg gac aag aat gaa gat ggt cga			976
Arg Leu Gln Ile Phe Phe Asp Met Val Asp Lys Asn Glu Asp Gly Arg			
280	285	290	295
att ggt gaa gaa gaa gta aaa gag atc atc atg cta agt gcc tct gca			1024
Ile Gly Glu Glu Val Lys Glu Ile Ile Met Leu Ser Ala Ser Ala			
300	305	310	
aac aaa tta tca aga tta aaa gaa caa gca gag gag tat gca gct ctg			1072
Asn Lys Leu Ser Arg Leu Lys Glu Gln Ala Glu Glu Tyr Ala Ala Leu			
315	320	325	
atc atg gaa gaa tta gat cct gaa aga ctt ggc tac att gag cta tgg			1120
Ile Met Glu Glu Leu Asp Pro Glu Arg Leu Gly Tyr Ile Glu Leu Trp			
330	335	340	
cag ctg gaa acg ctt ctc ctc caa aag gac act tac ctc aac tac agt			1168
Gln Leu Glu Thr Leu Leu Leu Gln Lys Asp Thr Tyr Leu Asn Tyr Ser			
345	350	355	

caa gca cta agc tac aca agc caa gct ttg agc caa aac ctg caa ggg	1216
Gln Ala Leu Ser Tyr Thr Ser Gln Ala Leu Ser Gln Asn Leu Gln Gly	
360 365 370 375	
ttg agg aag aga agc cca ata aga aga atg agc aca aaa ctt gtc tat	1264
Leu Arg Lys Arg Ser Pro Ile Arg Arg Met Ser Thr Lys Leu Val Tyr	
380 385 390	
tca ctg caa gag aat tgg aag aga att tgg gtt ctg gtc ttg tgg att	1312
Ser Leu Gln Glu Asn Trp Lys Arg Ile Trp Val Leu Val Leu Trp Ile	
395 400 405	
ttg ata atg att gga ctt ttt ctt tgg aag ttc tat ctg tac aaa cag	1360
Leu Ile Met Ile Gly Leu Phe Leu Trp Lys Phe Tyr Leu Tyr Lys Gln	
410 415 420	
aaa agt gca ttt caa gtt atg ggt tat tgc ctt cta aca gct aag ggt	1408
Lys Ser Ala Phe Gln Val Met Gly Tyr Cys Leu Leu Thr Ala Lys Gly	
425 430 435	
gct gct gag act cta aag ttc aac atg gct ttg ata ttg ttg cca gtt	1456
Ala Ala Glu Thr Leu Lys Phe Asn Met Ala Leu Ile Leu Leu Pro Val	
440 445 450 455	
tgc agg aac acc att aca ttc ctc agg tct act aaa ttg agt tgt ttt	1504
Cys Arg Asn Thr Ile Thr Phe Leu Arg Ser Thr Lys Leu Ser Cys Phe	
460 465 470	
gta ccc ttt gat gac aac atc aac ttc cac aag act gtt gct gca gcc	1552
Val Pro Phe Asp Asp Asn Ile Asn Phe His Lys Thr Val Ala Ala Ala	
475 480 485	
att gtt act ggt atc ata ctc cat gcc ggt aat cat ctt gta tgt gat	1600
Ile Val Thr Gly Ile Ile Leu His Ala Gly Asn His Leu Val Cys Asp	
490 495 500	
tcc cca aag ctt ata cat gca aat aat acg aat tat cag aaa tat ttg	1648
Phe Pro Lys Leu Ile His Ala Asn Asn Thr Asn Tyr Gln Lys Tyr Leu	
505 510 515	
gtg aat gat ttt ggc cca agc cag cct cag tac ata gat ctt gtt aaa	1696
Val Asn Asp Phe Gly Pro Ser Gln Pro Gln Tyr Ile Asp Leu Val Lys	
520 525 530 535	
gga gtg gag ggt gtg aca gga ata ata atg gta atc ctc atg gcc att	1744
Gly Val Glu Gly Val Thr Gly Ile Ile Met Val Ile Leu Met Ala Ile	
540 545 550	
gct ttc act ctt gca acg cga tgg ttt agg cgg agc ctc att aag ttt	1792
Ala Phe Thr Leu Ala Thr Arg Trp Phe Arg Arg Ser Leu Ile Lys Phe	
555 560 565	
ccc aaa cct ttt gat aga ctc act ggt ttc aat gcg ttc tgg tac tcg	1840
Pro Lys Pro Phe Asp Arg Leu Thr Gly Phe Asn Ala Phe Trp Tyr Ser	
570 575 580	
cac cac ctt ctc atc att gtc tac atc gta ctg atc atc cat ggc aca	1888
His His Leu Leu Ile Ile Val Tyr Ile Val Leu Ile Ile His Gly Thr	
585 590 595	
tcc ctc tac ctt gtg cat aac tgg tac tcc aaa acg aca tgg atg tat	1936
Phe Leu Tyr Leu Val His Asn Trp Tyr Ser Lys Thr Thr Trp Met Tyr	
600 605 610 615	
cta gca gtt cct gta ctt ctc tac gca ggg gaa aga act ctt aga ttc	1984
Leu Ala Val Pro Val Leu Leu Tyr Ala Gly Glu Arg Thr Leu Arg Phe	
620 625 630	
tcc cga tca ggc tta tat aca gtc cgg ctt cta aaa gta gca ata tat	2032
Phe Arg Ser Gly Leu Tyr Thr Val Arg Leu Leu Lys Val Ala Ile Tyr	
635 640 645	
cct gga aat gtc ctt act ctg caa atg tct aag cct ccg caa ttt cga	2080
Pro Gly Asn Val Leu Thr Leu Gln Met Ser Lys Pro Pro Gln Phe Arg	
650 655 660	
tac aag agt gga caa tat atg ttt gtc cag tgt cca gct gtt tct cca	2128
Tyr Lys Ser Gly Gln Tyr Met Phe Val Gln Cys Pro Ala Val Ser Pro	
665 670 675	
ttc gag tgg cat cca ttt tcc att act tca gct cct ggg gat gac tac	2176

gtggggact gatagcttg ttgggtggAAC ttataatggg gctaaaggaa tccttccaaa 3530
 aaatgtctat gtagtaacta cttttcttt tgcttgcgatatttttgggtatTTA 3590
 atatactact tattagataa gaggatagaa aatacgtgtatgcatttc ttattagtaa 3650
 agtttatctg tagtagttct ttaatctggaa gaaaggtaact atcaaaggaa atatctcatc 3710
 gaaaaaaaaaaa aaaaaaaaaaaa aaa 3733

<210> 8
 <211> 963
 <212> PRT
 <213> Solanum tuberosum

<400> 8
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 Ser Ser Gly Lys Asp Leu Ser Gly Glu Ser Ser Pro Gly Thr Asp Ser
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 Gly Asn Ile Ser Gly Phe Ala Ser Glu Glu Phe Val Glu Val Ile Leu
 35 40 45
 Asp Leu Gln Asp Asp Asp Asp Thr Ile Ile Leu Arg Ser Val Glu Pro Ala
 50 55 60
 Thr Val Ile Asn Ile Asp Ala Ser Asp Pro Ala Thr Gly Val Gly Ile
 65 70 75 80
 Gly Gly Val Ser Ile Glu Thr Pro Ala Ser Leu Thr Ser Thr Ser Gly
 85 90 95
 Thr Arg Ser Pro Thr Met Arg Arg Ser Thr Ser Asn Lys Leu Arg Gln
 100 105 110
 Phe Ser Gln Glu Leu Lys Ala Glu Ala Val Ala Lys Ala Lys His Phe
 115 120 125
 Ser Gln Glu Leu Lys Ala Glu Leu Arg Arg Phe Ser Trp Ser His Gly
 130 135 140
 His Ala Ser Arg Thr Phe Ser Pro Ala Ser Phe Phe Gln Asn Ala Val
 145 150 155 160
 Val Gly Thr Gly Asn Gly Val Asp Ser Ala Leu Ala Ala Arg Ala Leu
 165 170 175
 Arg Arg Gln Arg Ala Gln Leu Asp Arg Thr Arg Ser Ser Ala His Lys
 180 185 190
 Ala Leu Arg Gly Leu Lys Phe Ile Ser Asn Asn Lys Thr Asn Gly Trp
 195 200 205
 Asn Glu Val Glu Asn Asn Phe Ala Lys Leu Ala Lys Asp Gly Tyr Leu
 210 215 220
 Tyr Arg Ser Asp Phe Ala Gln Cys Ile Gly Met Lys Asp Ser Lys Glu
 225 230 235 240
 Phe Ala Leu Glu Leu Phe Asp Ala Leu Ser Arg Arg Arg Arg Leu Lys
 245 250 255
 Val Asp Lys Ile Ser Lys Glu Glu Leu Tyr Glu Tyr Trp Ser Gln Ile
 260 265 270
 Thr Asp Gln Ser Phe Asp Ser Arg Leu Gln Ile Phe Phe Asp Met Val
 275 280 285
 Asp Lys Asn Glu Asp Gly Arg Ile Gly Glu Glu Val Lys Glu Ile
 290 295 300
 Ile Met Leu Ser Ala Ser Ala Asn Lys Leu Ser Arg Leu Lys Glu Gln
 305 310 315 320
 Ala Glu Glu Tyr Ala Ala Leu Ile Met Glu Glu Leu Asp Pro Glu Arg
 325 330 335
 Leu Gly Tyr Ile Leu Trp Gln Leu Glu Thr Leu Leu Leu Gln Lys
 340 345 350
 Asp Thr Tyr Leu Asn Tyr Ser Gln Ala Leu Ser Tyr Thr Ser Gln Ala
 355 360 365
 Leu Ser Gln Asn Leu Gln Gly Leu Arg Lys Arg Ser Pro Ile Arg Arg
 370 375 380
 Met Ser Thr Lys Leu Val Tyr Ser Leu Gln Glu Asn Trp Lys Arg Ile

385	390	395	400
Trp Val Leu Val Leu Trp Ile Leu Ile Met Ile Gly Leu Phe Leu Trp			
405	410	415	
Lys Phe Tyr Leu Tyr Lys Gln Lys Ser Ala Phe Gln Val Met Gly Tyr			
420	425	430	
Cys Leu Leu Thr Ala Lys Gly Ala Ala Glu Thr Leu Lys Phe Asn Met			
435	440	445	
Ala Leu Ile Leu Leu Pro Val Cys Arg Asn Thr Ile Thr Phe Leu Arg			
450	455	460	
Ser Thr Lys Leu Ser Cys Phe Val Pro Phe Asp Asp Asn Ile Asn Phe			
465	470	475	480
His Lys Thr Val Ala Ala Ala Ile Val Thr Gly Ile Ile Leu His Ala			
485	490	495	
Gly Asn His Leu Val Cys Asp Phe Pro Lys Leu Ile His Ala Asn Asn			
500	505	510	
Thr Asn Tyr Gln Lys Tyr Leu Val Asn Asp Phe Gly Pro Ser Gln Pro			
515	520	525	
Gln Tyr Ile Asp Leu Val Lys Gly Val Glu Gly Val Thr Gly Ile Ile			
530	535	540	
Met Val Ile Leu Met Ala Ile Ala Phe Thr Leu Ala Thr Arg Trp Phe			
545	550	555	560
Arg Arg Ser Leu Ile Lys Phe Pro Lys Pro Phe Asp Arg Leu Thr Gly			
565	570	575	
Phe Asn Ala Phe Trp Tyr Ser His His Leu Leu Ile Ile Val Tyr Ile			
580	585	590	
Val Leu Ile Ile His Gly Thr Phe Leu Tyr Leu Val His Asn Trp Tyr			
595	600	605	
Ser Lys Thr Thr Trp Met Tyr Leu Ala Val Pro Val Leu Leu Tyr Ala			
610	615	620	
Gly Glu Arg Thr Leu Arg Phe Phe Arg Ser Gly Leu Tyr Thr Val Arg			
625	630	635	640
Leu Leu Lys Val Ala Ile Tyr Pro Gly Asn Val Leu Thr Leu Gln Met			
645	650	655	
Ser Lys Pro Pro Gln Phe Arg Tyr Lys Ser Gly Gln Tyr Met Phe Val			
660	665	670	
Gln Cys Pro Ala Val Ser Pro Phe Glu Trp His Pro Phe Ser Ile Thr			
675	680	685	
Ser Ala Pro Gly Asp Asp Tyr Leu Ser Ile His Ile Arg Gln Leu Gly			
690	695	700	
Asp Trp Thr Gln Glu Leu Lys Arg Val Phe Ser Glu Ala Cys Glu Gln			
705	710	715	720
Pro Glu Ala Gly Lys Ser Gly Leu Leu Arg Ala Asp Glu Asn Thr Lys			
725	730	735	
Thr Ser Leu Pro Lys Leu Leu Ile Asp Gly Pro Tyr Gly Ala Pro Ala			
740	745	750	
Gln Asp Tyr Arg Lys Tyr Asp Val Leu Leu Leu Val Gly Leu Gly Ile			
755	760	765	
Gly Ala Thr Pro Phe Ile Ser Ile Leu Lys Asp Leu Leu Lys Asn Ile			
770	775	780	
Val Thr Met Glu Glu Gln Ala Asp Leu Val Ser Asp Phe Ser Gly Asn			
785	790	795	800
Ser Asp Met Ser Ala Ala Thr Ser Glu Gln Pro Ala Leu Asn Lys Ile			
805	810	815	
Ser Pro Lys Lys Arg Lys Ser Thr Leu Lys Thr Thr Asn Ala Tyr Phe			
820	825	830	
Tyr Trp Val Thr Arg Glu Gln Gly Ser Phe Asp Trp Phe Lys Gly Val			
835	840	845	
Met Asn Glu Val Ala Glu Leu Asp Gln Arg Gly Val Ile Glu Met His			
850	855	860	
Asn Tyr Leu Thr Ser Val Tyr Glu Glu Gly Asp Ala Arg Ser Ala Leu			
865	870	875	880

Ile Thr Met Val Gln Ala Leu Asn His Ala Lys Asn Gly Val Asp Ile
 885 890 895
 Val Ser Gly Thr Ser Val Arg Thr His Phe Ala Arg Pro Asn Trp Arg
 900 905 910
 Lys Val Phe Ser Lys Thr Leu Thr Lys His Ala Asn Ala Arg Ile Gly
 915 920 925
 Val Phe Tyr Cys Gly Ala Pro Ile Leu Ala Lys Glu Leu Ser Lys Leu
 930 935 940
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 945 950 955 960
 Glu His Phe

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 <213> Lycopersicon esculentum

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 tttattgtca tttgatttgg gacag atg agg ggt tta cct ggg cat gaa cgc 172
 Met Arg Gly Leu Pro Gly His Glu Arg
 1 5
 cggtgg acg tcg gat acg gtg tct tcc ggg aag gat tta agt ggt gag 220
 Arg Trp Thr Ser Asp Thr Val Ser Ser Gly Lys Asp Leu Ser Gly Glu
 10 15 20 25
 tca tcg ccg gga act gat tcc ggg aat att tcc ggt ttt gct tcg gag 268
 Ser Ser Pro Gly Thr Asp Ser Gly Asn Ile Ser Gly Phe Ala Ser Glu
 30 35 40
 gag ttt gtt gaa gtt ata ctt gat ctt cag gat gat acg att att 316
 Glu Phe Val Glu Val Ile Leu Asp Leu Gln Asp Asp Asp Thr Ile Ile
 45 50 55
 tta cgg agc gtt gaa ccg gct act gta atc aac att gat ggt tct gat 364
 Leu Arg Ser Val Glu Pro Ala Thr Val Ile Asn Ile Asp Gly Ser Asp
 60 65 70
 cct gct tcc gga gtc ggt att ggt gga gca tcg att gaa act ccg gcg 412
 Pro Ala Ser Gly Val Gly Ile Gly Gly Ala Ser Ile Glu Thr Pro Ala
 75 80 85
 tcg gtg acg tcg acg tcg gaa act cga tcg ccg atg atg cgt cgg agt 460
 Ser Val Thr Ser Thr Ser Glu Thr Arg Ser Pro Met Met Arg Arg Ser
 90 95 100 105
 aca tct aat aag ttt cgt cag ttt tca cag gag ttg aaa gct gag gct 508
 Thr Ser Asn Lys Phe Arg Gln Phe Ser Gln Glu Leu Lys Ala Glu Ala
 110 115 120
 gtt gcg aaa gcg aag cat ttc tcg caa gag ctt aaa gcg gag cta agg 556
 Val Ala Lys Ala Lys His Phe Ser Gln Glu Leu Lys Ala Glu Leu Arg
 125 130 135
 aga ttc tca tgg agc cat gga cat gcg tct cgt gct ttt tcg ccg gcg 604
 Arg Phe Ser Trp Ser His Gly His Ala Ser Arg Ala Phe Ser Pro Ala
 140 145 150
 tcg ttt ttc caa aac gct gtc gtc gga aca ggc aac ggt gta gac tcg 652
 Ser Phe Phe Gln Asn Ala Val Val Gly Thr Gly Asn Gly Val Asp Ser
 155 160 165
 gct tta gcg gct cga gca tta cgt cgg cag cgt gct cag ctc gac cgg 700
 Ala Leu Ala Ala Arg Ala Leu Arg Arg Gln Arg Ala Gln Leu Asp Arg

170	175	180	185	
act cgt tcc agc gca cac aac gct ctt cgt gga ctc aaa ttc atc agc				748
Thr Arg Ser Ser Ala His Lys Ala Leu Arg Gly Leu Lys Phe Ile Ser				
190	195	200		
aat aac aaa act aac gga tgg aat gaa gtt gaa aac aat ttc gct aag				796
Asn Asn Lys Thr Asn Gly Trp Asn Glu Val Glu Asn Asn Phe Ala Lys				
205	210	215		
ctc gct aaa gac ggt tac ctt tat cgt tcc gat ttc gca caa tgc atc				844
Leu Ala Lys Asp Gly Tyr Leu Tyr Arg Ser Asp Phe Ala Gln Cys Ile				
220	225	230		
ggt cag tac tca cgc cgg cga tca cta cag ttt aat tat aga tta att				892
Gly Gln Tyr Ser Arg Arg Ser Leu Gln Phe Asn Tyr Arg Leu Ile				
235	240	245		
aca tta att ttg att aat tat ttg gtt aaa ggt atg aag gat tca aag				940
Thr Leu Ile Leu Ile Asn Tyr Leu Val Lys Gly Met Lys Asp Ser Lys				
250	255	260	265	
gaa ttt gcg ttg gaa ttg ttt gat gct tta agt aga aga aga aga ttg				988
Glu Phe Ala Leu Glu Leu Phe Asp Ala Leu Ser Arg Arg Arg Arg Leu				
270	275	280		
aag gtt gat aag att agc caa gag gaa ttg tat gag tat tgg tct caa				1036
Lys Val Asp Lys Ile Ser Gln Glu Glu Leu Tyr Glu Tyr Trp Ser Gln				
285	290	295		
atc acc gat cag agt ttc gat tct cgg ctt cag atc ttc ttc gac atg				1084
Ile Thr Asp Gln Ser Phe Asp Ser Arg Leu Gln Ile Phe Phe Asp Met				
300	305	310		
gtg gac aag aat gaa gat ggt cga att ggt gaa gaa gaa gta aaa gag				1132
Val Asp Lys Asn Glu Asp Gly Arg Ile Gly Glu Glu Val Lys Glu				
315	320	325		
atc atc atg cta agt gcc tct gca aac aaa tta tca aga tta aaa gaa				1180
Ile Ile Met Leu Ser Ala Ser Ala Asn Lys Leu Ser Arg Leu Lys Glu				
330	335	340	345	
caa gca gag gag tat gca gct ctg atc atg gaa gaa tta gat cct gaa				1228
Gln Ala Glu Glu Tyr Ala Ala Leu Ile Met Glu Glu Leu Asp Pro Glu				
350	355	360		
aga ctt ggc tac att gag cta tgg cag ctg gaa aca ctt ctc ctc caa				1276
Arg Leu Gly Tyr Ile Glu Leu Trp Gln Leu Glu Thr Leu Leu Gln				
365	370	375		
aag gac act tac ctc aac tac agt caa gca cta agc tac aca agc caa				1324
Lys Asp Thr Tyr Leu Asn Tyr Ser Gln Ala Leu Ser Tyr Thr Ser Gln				
380	385	390		
gct ttg agc caa aat ctg caa ggg ttg agg aag aga agc cca ata aga				1372
Ala Leu Ser Gln Asn Leu Gln Gly Leu Arg Lys Arg Ser Pro Ile Arg				
395	400	405		
aga atg agc aca aaa ctt gtc tat tca ctg caa gag aat tgg aag aga				1420
Arg Met Ser Thr Lys Leu Val Tyr Ser Leu Gln Glu Asn Trp Lys Arg				
410	415	420	425	
att tgg gtt ctg gtc ttg ttg att ttg ata atg att gga ctt ttt ctt				1468
Ile Trp Val Leu Val Leu Trp Ile Leu Ile Met Ile Gly Leu Phe Leu				
430	435	440		
tgg aag ttc tat cag tac aaa cag aaa agt gca ttt caa gtc atg ggt				1516
Trp Lys Phe Tyr Gln Tyr Lys Gln Lys Ser Ala Phe Gln Val Met Gly				
445	450	455		
tat tgc ctt cta aca gct aag ggt gct gct gag act ctc aag ttc aac				1564
Tyr Cys Leu Leu Thr Ala Lys Gly Ala Ala Glu Thr Leu Lys Phe Asn				
460	465	470		
atg gct tta ata ttg ttg cca gta tgc agg aac acc att aca ttc ctc				1612
Met Ala Leu Ile Leu Leu Pro Val Cys Arg Asn Thr Ile Thr Phe Leu				
475	480	485		
agg tct act aaa ttg agc tgt ttt gta ccc ttt gat gac aac ata aac				1660
Arg Ser Thr Lys Leu Ser Cys Phe Val Pro Phe Asp Asp Asn Ile Asn				
490	495	500	505	

ttt cac aag act gtt gca gcc att gtc act ggt atc ata ctc cat	1708
Phe His Lys Thr Val Ala Ala Ala Ile Val Thr Gly Ile Ile Leu His	
510 515 520	
gcc ggt aat cac ctt gta tgt gat ttc cca aag ctt ata cat gca aat	1756
Ala Gly Asn His Leu Val Cys Asp Phe Pro Lys Leu Ile His Ala Asn	
525 530 535	
agt acg aat tat cag aaa tat ttg gtg aat gat ttt ggc cca agc cag	1804
Ser Thr Asn Tyr Gln Lys Tyr Leu Val Asn Asp Phe Gly Pro Ser Gln	
540 545 550	
cct cag tac ata gat ctt gtt aaa gga gtg gag ggt gtg act gga ata	1852
Pro Gln Tyr Ile Asp Leu Val Lys Gly Val Glu Gly Val Thr Gly Ile	
555 560 565	
gtt atg gta atc ctc atg gcc att gct ttc act ctt gca acg cga tgg	1900
Val Met Val Ile Leu Met Ala Ile Ala Phe Thr Leu Ala Thr Arg Trp	
570 575 580 585	
ttt agg cgg agc ctc att aag tta ccc aaa cct ttt gat aga ctc act	1948
Phe Arg Arg Ser Leu Ile Lys Leu Pro Lys Pro Phe Asp Arg Leu Thr	
590 595 600	
ggt ttc aat gcg ttc tgg tac tcg cac cac ctt ctc atc att gtc tac	1996
Gly Phe Asn Ala Phe Trp Tyr Ser His His Leu Leu Ile Ile Val Tyr	
605 610 615	
atc gta ctg atc atc cat ggc aca ttc ctc tac ctt gtg cat aac tgg	2044
Ile Val Leu Ile Ile His Gly Thr Phe Leu Tyr Leu Val His Asn Trp	
620 625 630	
tac tcc aaa acg aca tgg atg tat ata gca gtt cct gta ctt ctt tac	2092
Tyr Ser Lys Thr Thr Trp Met Tyr Ile Ala Val Pro Val Leu Leu Tyr	
635 640 645	
gca ggg gaa aga act ctt aga ttc ttc cga tca ggc tta tac agt gtc	2140
Ala Gly Glu Arg Thr Leu Arg Phe Phe Arg Ser Gly Leu Tyr Ser Val	
650 655 660 665	
cgg ctt cta aaa gta gca ata tat cct gga aat gtc ctt act ctg caa	2188
Arg Leu Leu Lys Val Ala Ile Tyr Pro Gly Asn Val Leu Thr Leu Gln	
670 675 680	
atg tct aag cct ccg caa ttt cga tac aag agt gga cag tat atg ttt	2236
Met Ser Lys Pro Pro Gln Phe Arg Tyr Lys Ser Gly Gln Tyr Met Phe	
685 690 695	
gtc cag tgt cca gct gtt tct cca ttc gag tgg cat cca ttt tcc att	2284
Val Gln Cys Pro Ala Val Ser Pro Phe Glu Trp His Pro Phe Ser Ile	
700 705 710	
act tca gct cct ggg gat gac tac ttg agc att cat atc cga caa ctt	2332
Thr Ser Ala Pro Gly Asp Asp Tyr Leu Ser Ile His Ile Arg Gln Leu	
715 720 725	
ggt gac tgg actcaa gaa ctc aag cga gtg ttt tcc gag gct tgc gag	2380
Gly Asp Trp Thr Gln Glu Leu Lys Arg Val Phe Ser Glu Ala Cys Glu	
730 735 740 745	
cag cca gag gct gga aag agt ggc ctg ctc aga gct gac gaa aac acc	2428
Gln Pro Glu Ala Gly Lys Ser Gly Leu Leu Arg Ala Asp Glu Asn Thr	
750 755 760	
aaa aca agt ttg cca aag cta tta ata gat gga cct tat gga gct cca	2476
Lys Thr Ser Leu Pro Lys Leu Ile Asp Gly Pro Tyr Gly Ala Pro	
765 770 775	
gca caa gat tac cgg aag tat gat gtc tta ctg ctt gtt ggt ctt ggc	2524
Ala Gln Asp Tyr Arg Lys Tyr Asp Val Leu Leu Val Gly Leu Gly	
780 785 790	
att gga gca act ccc ttt ata agt atc ctg aaa gac ttg ctc aaa aac	2572
Ile Gly Ala Thr Pro Phe Ile Ser Ile Leu Lys Asp Leu Leu Lys Asn	
795 800 805	
atc gtc gca atg gag gag caa gca gat tta gtc tcg gat ttc agt gga	2620
Ile Val Ala Met Glu Glu Gln Ala Asp Leu Val Ser Asp Phe Ser Gly	
810 815 820 825	
aac tcg gac atg agt gct gca aca agt gaa caa cca gct ctc aac aag	2668

Asn Ser Asp Met Ser Ala Ala Thr Ser Glu Gln Pro Ala Leu Asn Lys			
830	835	840	
att tct cca aaa aag aga aag agt act cta aaa acc aca aat gca tat			2716
Ile Ser Pro Lys Lys Arg Lys Ser Thr Leu Lys Thr Thr Asn Ala Tyr			
845	850	855	
ttt tat tgg gtg acc cgg gag caa gga tca ttt gat tgg ttc aaa ggt			2764
Phe Tyr Trp Val Thr Arg Glu Gln Gly Ser Phe Asp Trp Phe Lys Gly			
860	865	870	
gtt atg aat gaa gtg gct gaa ctt gat caa agg ggt gtc atc gag atg			2812
Val Met Asn Glu Val Ala Glu Leu Asp Gln Arg Gly Val Ile Glu Met			
875	880	885	
cat aac tac ttg acg agt gtt tat gag gaa ggg gat gca cgt tca gct			2860
His Asn Tyr Leu Thr Ser Val Tyr Glu Glu Gly Asp Ala Arg Ser Ala			
890	895	900	905
ctc att acc atg gtc cag gca ctt aac cat gct aag aat ggg gtt gat			2908
Leu Ile Thr Met Val Gln Ala Leu Asn His Ala Lys Asn Gly Val Asp			
910	915	920	
att gta tca ggc acc agt gtg agg aca cat ttc gcc agg ccg aat tgg			2956
Ile Val Ser Gly Thr Ser Val Arg Thr His Phe Ala Arg Pro Asn Trp			
925	930	935	
agg aaa gta ttt tcc aag acc tta acc aag cat gca aat gca aga ata			3004
Arg Lys Val Phe Ser Lys Thr Leu Thr Lys His Ala Asn Ala Arg Ile			
940	945	950	
gga gtt ttc tac tgc ggt gca ccc ata tta gct aaa gaa ctc agc caa			3052
Gly Val Phe Tyr Cys Gly Ala Pro Ile Leu Ala Lys Glu Leu Ser Gln			
955	960	965	
ctc tgc aaa gag ttt aac caa aag ggc aca aca aag ttc gag ttt cac			3100
Leu Cys Lys Glu Phe Asn Gln Lys Gly Thr Thr Lys Phe Glu Phe His			
970	975	980	985
aaa gaa cat ttt tagaaggccc tggagttatga ttaatcttgc atcaacggta			3152
Lys Glu His Phe			
cacacatcta tcttcggta cttatttgat tattctactg aagagataac attagtaagg			3212
aataagtca agataaaattg tacataatag ggaagaagac tatttcaaga gaaaatacat			3272
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<212> PRT

<213> Lycopersicon esculentum

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Gly Asn Ile Ser Gly Phe Ala Ser Glu Glu Phe Val Glu Val Ile Leu			
35	40	45	
Asp Leu Gln Asp Asp Asp Thr Ile Ile Leu Arg Ser Val Glu Pro Ala			
50	55	60	
Thr Val Ile Asn Ile Asp Gly Ser Asp Pro Ala Ser Gly Val Gly Ile			
65	70	75	80
Gly Gly Ala Ser Ile Glu Thr Pro Ala Ser Val Thr Ser Thr Ser Glu			
85	90	95	
Thr Arg Ser Pro Met Met Arg Arg Ser Thr Ser Asn Lys Phe Arg Gln			
100	105	110	
Phe Ser Gln Glu Leu Lys Ala Glu Ala Val Ala Lys Ala Lys His Phe			
115	120	125	
Ser Gln Glu Leu Lys Ala Glu Leu Arg Arg Phe Ser Trp Ser His Gly			
130	135	140	
His Ala Ser Arg Ala Phe Ser Pro Ala Ser Phe Phe Gln Asn Ala Val			
145	150	155	160

Val Gly Thr Gly Asn Gly Val Asp Ser Ala Leu Ala Ala Arg Ala Leu
 165 170 175
 Arg Arg Gln Arg Ala Gln Leu Asp Arg Thr Arg Ser Ser Ala His Lys
 180 185 190
 Ala Leu Arg Gly Leu Lys Phe Ile Ser Asn Asn Lys Thr Asn Gly Trp
 195 200 205
 Asn Glu Val Glu Asn Asn Phe Ala Lys Leu Ala Lys Asp Gly Tyr Leu
 210 215 220
 Tyr Arg Ser Asp Phe Ala Gln Cys Ile Gly Gln Tyr Ser Arg Arg Arg
 225 230 235 240
 Ser Leu Gln Phe Asn Tyr Arg Leu Ile Thr Leu Ile Leu Ile Asn Tyr
 245 250 255
 Leu Val Lys Gly Met Lys Asp Ser Lys Glu Phe Ala Leu Glu Leu Phe
 260 265 270
 Asp Ala Leu Ser Arg Arg Arg Leu Lys Val Asp Lys Ile Ser Gln
 275 280 285
 Glu Glu Leu Tyr Glu Tyr Trp Ser Gln Ile Thr Asp Gln Ser Phe Asp
 290 295 300
 Ser Arg Leu Gln Ile Phe Phe Asp Met Val Asp Lys Asn Glu Asp Gly
 305 310 315 320
 Arg Ile Gly Glu Glu Val Lys Glu Ile Ile Met Leu Ser Ala Ser
 325 330 335
 Ala Asn Lys Leu Ser Arg Leu Lys Glu Gln Ala Glu Glu Tyr Ala Ala
 340 345 350
 Leu Ile Met Glu Glu Leu Asp Pro Glu Arg Leu Gly Tyr Ile Glu Leu
 355 360 365
 Trp Gln Leu Glu Thr Leu Leu Gln Lys Asp Thr Tyr Leu Asn Tyr
 370 375 380
 Ser Gln Ala Leu Ser Tyr Thr Ser Gln Ala Leu Ser Gln Asn Leu Gln
 385 390 395 400
 Gly Leu Arg Lys Arg Ser Pro Ile Arg Arg Met Ser Thr Lys Leu Val
 405 410 415
 Tyr Ser Leu Gln Glu Asn Trp Lys Arg Ile Trp Val Leu Val Leu Trp
 420 425 430
 Ile Leu Ile Met Ile Gly Leu Phe Leu Trp Lys Phe Tyr Gln Tyr Lys
 435 440 445
 Gln Lys Ser Ala Phe Gln Val Met Gly Tyr Cys Leu Leu Thr Ala Lys
 450 455 460
 Gly Ala Ala Glu Thr Leu Lys Phe Asn Met Ala Leu Ile Leu Leu Pro
 465 470 475 480
 Val Cys Arg Asn Thr Ile Thr Phe Leu Arg Ser Thr Lys Leu Ser Cys
 485 490 495
 Phe Val Pro Phe Asp Asp Asn Ile Asn Phe His Lys Thr Val Ala Ala
 500 505 510
 Ala Ile Val Thr Gly Ile Ile Leu His Ala Gly Asn His Leu Val Cys
 515 520 525
 Asp Phe Pro Lys Leu Ile His Ala Asn Ser Thr Asn Tyr Gln Lys Tyr
 530 535 540
 Leu Val Asn Asp Phe Gly Pro Ser Gln Pro Gln Tyr Ile Asp Leu Val
 545 550 555 560
 Lys Gly Val Glu Gly Val Thr Gly Ile Val Met Val Ile Leu Met Ala
 565 570 575
 Ile Ala Phe Thr Leu Ala Thr Arg Trp Phe Arg Arg Ser Leu Ile Lys
 580 585 590
 Leu Pro Lys Pro Phe Asp Arg Leu Thr Gly Phe Asn Ala Phe Trp Tyr
 595 600 605
 Ser His His Leu Leu Ile Ile Val Tyr Ile Val Leu Ile Ile His Gly
 610 615 620
 Thr Phe Leu Tyr Leu Val His Asn Trp Tyr Ser Lys Thr Thr Trp Met
 625 630 635 640
 Tyr Ile Ala Val Pro Val Leu Leu Tyr Ala Gly Glu Arg Thr Leu Arg

645	650	655
Phe	Phe	Arg
Arg	Ser	Gly
Gly	Leu	Tyr
Ser	Val	Arg
Leu	Leu	Leu
Lys	Val	Ala
660	665	670
Tyr	Pro	Gly
Gly	Asn	Val
Val	Leu	Thr
Leu	Gln	Met
Gln	Ser	Lys
Met	Pro	Pro
Pro	Pro	Gln
Phe		
675	680	685
Arg	Tyr	Lys
Lys	Ser	Gly
Gly	Gln	Tyr
Tyr	Met	Phe
Met	Val	Gln
Gln	Cys	Pro
Cys	Pro	Ala
Ala	Val	Ser
690	695	700
Pro	Phe	Glu
Glu	Trp	His
Trp	His	Phe
Phe	Ser	Ile
Ser	Ile	Thr
Ala	Pro	Gly
Pro	Gly	Asp
Asp		
705	710	715
Tyr	Leu	Ser
Leu	Ile	His
Ile	Arg	Gln
Gln	Leu	Gly
Leu	Gly	Asp
Asp	Trp	Thr
Trp	Thr	Gln
Gln	Glu	Leu
Glu		
725	730	735
Lys	Arg	Val
Arg	Val	Phe
Phe	Ser	Glu
Glu	Ala	Cys
Ala	Gln	Pro
Gln	Pro	Glu
Glu	Ala	Gly
Gly	Lys	Ser
740	745	750
Gly	Leu	Leu
Leu	Arg	Ala
Arg	Ala	Asp
Asp	Glu	Asn
Glu	Asn	Thr
Asn	Thr	Ser
Thr	Leu	Pro
Leu	Pro	Lys
Pro	Lys	Leu
Leu	Ile	Asp
Ile	Asp	Gly
Gly	Pro	Tyr
Tyr	Gly	Ala
Ala	Pro	Gln
Gln	Asp	Tyr
Tyr	Arg	Lys
Lys		
755	760	765
Leu	Ile	Asp
Ile	Asp	Gly
Gly	Pro	Tyr
Tyr	Gly	Ala
Ala	Pro	Gln
Gln	Asp	Tyr
Tyr	Arg	Lys
Lys		
770	775	780
Asp	Val	Leu
Val	Leu	Leu
Leu	Gly	Leu
Gly	Ile	Gly
Ile	Gly	Ala
Gly	Ala	Thr
Thr	Pro	Phe
Phe	Ile	
Ile		
785	790	795
Ser	Ile	Leu
Leu	Lys	Asp
Asp	Leu	Leu
Leu	Lys	Asn
Asn	Ile	Val
Val	Ala	Met
Ala	Glu	Glu
Glu		
805	810	815
Ala	Asp	Leu
Leu	Val	Ser
Ser	Asp	Phe
Phe	Ser	Gly
Gly	Asn	Ser
Ser	Asp	Met
Met	Ser	Ala
Ala	Ala	
820	825	830
Thr	Ser	Glu
Glu	Gln	Pro
Pro	Ala	Leu
Leu	Asn	Lys
Lys	Ile	Ser
Ser	Pro	Lys
Lys	Lys	Arg
Arg		
835	840	845
Ser	Thr	Leu
Leu	Lys	Thr
Thr	Thr	Asn
Asn	Ala	Tyr
Tyr	Phe	Tyr
Tyr	Trp	Val
Val	Thr	Arg
Arg		
850	855	860
Gln	Gly	Ser
Ser	Phe	Asp
Asp	Trp	Phe
Phe	Lys	Gly
Gly	Val	Val
Val	Met	Met
Met	Asn	Asn
Asn	Tyr	Leu
Leu	Thr	Ser
Ser	Val	
Val		
885	890	895
Tyr	Glu	Glu
Glu	Gly	Asp
Asp	Ala	Arg
Arg	Ser	Ala
Ala	Ile	Thr
Thr	Met	Val
Met	Val	Gln
Gln		
900	905	910
Leu	Asn	His
His	Ala	Lys
Lys	Asn	Gly
Gly	Val	Asp
Asp	Ile	Val
Val	Ser	Gly
Gly	Thr	Ser
Ser	Val	
915	920	925
Arg	Thr	His
His	Phe	Ala
Ala	Arg	Pro
Arg	Asn	Trp
Asn	Trp	Arg
Trp	Arg	Lys
Arg		
930	935	940
Leu	Thr	Lys
Lys	His	Ala
His	Ala	Asn
Ala	Arg	Ile
Arg	Ile	Gly
Gly	Val	Phe
Phe	Tyr	Cys
Cys	Gly	Ala
Ala		
945	950	955
Pro	Ile	Leu
Leu	Ala	Lys
Lys	Glu	Leu
Leu	Ser	Gln
Gln	Leu	Cys
Cys	Lys	Glu
Glu	Phe	Asn
Asn	Gln	
Lys	Gly	
Gly	Thr	Thr
Thr	Lys	Phe
Phe	Glu	Phe
Glu	His	Lys
Lys	Glu	His
His	Phe	
980	985	

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 <222> (15)...(2846)
 <223> coding for NADPH oxidase

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 Ser Phe Asp Ser Val Ser Ala Gly Lys Thr Ala Val Gly Ser Ala Ser
 15 20 25

act tca ccg gga act gaa tac tcc att aac ggt gat caa gag ttc gtt	146
Thr Ser Pro Gly Thr Glu Tyr Ser Ile Asn Gly Asp Gln Glu Phe Val	
30 35 40	
gaa gtc aca atc gat ctt caa gac gat gac aca atc gtt ctt cgt agc	194
Glu Val Thr Ile Asp Leu Gln Asp Asp Asp Thr Ile Val Leu Arg Ser	
45 50 55 60	
gtc gag cca gca acc gcc att aat gtc atc gga gat atc tcc gac gac	242
Val Glu Pro Ala Thr Ala Ile Asn Val Ile Gly Asp Ile Ser Asp Asp	
65 70 75	
aac acc gga ata atg act ccg gtt tcg att tcg aga tct ccg acg atg	290
Asn Thr Gly Ile Met Thr Pro Val Ser Ile Ser Arg Ser Pro Thr Met	
80 85 90	
aaa cga act tca tct aat cgg ttc cga caa ttc tca caa gag ctt aaa	338
Lys Arg Thr Ser Ser Asn Arg Phe Arg Gln Phe Ser Gln Glu Leu Lys	
95 100 105	
gcc gaa gct gtg gcg aaa gcg aaa cag tta tct cag gag ttg aaa cga	386
Ala Glu Ala Val Ala Lys Ala Lys Gln Leu Ser Gln Glu Leu Lys Arg	
110 115 120	
ttc tca tgg tct cgt tct ttc tca ggt aac tta acc act act agt acc	434
Phe Ser Trp Ser Arg Ser Phe Ser Gly Asn Leu Thr Thr Ser Thr	
125 130 135 140	
gcc gct aat caa agc ggc ggt gct ggt ggt ttg gtg aac tcg gct	482
Ala Ala Asn Gln Ser Gly Gly Ala Gly Gly Leu Val Asn Ser Ala	
145 150 155	
tta gaa gcg cga gcg ttg cga aag caa cgt gct cag tta gat cgg act	530
Leu Glu Ala Arg Ala Leu Arg Lys Gln Arg Ala Gln Leu Asp Arg Thr	
160 165 170	
cggtctagt gct caa aga gct ctt cgt ggt ttg aga ttc att agc aat	578
Arg Ser Ser Ala Gln Arg Ala Leu Arg Gly Leu Arg Phe Ile Ser Asn	
175 180 185	
aag caa aag aac gtt gat ggt tgg aac gat gtt caa tca aat ttc gaa	626
Lys Gln Lys Asn Val Asp Gly Trp Asn Asp Val Gln Ser Asn Phe Glu	
190 195 200	
aaa ttc gaa aaa aat ggt tac atc tat cgc tcc gat ttc gct caa tgc	674
Lys Phe Glu Lys Asn Gly Tyr Ile Tyr Arg Ser Asp Phe Ala Gln Cys	
205 210 215 220	
ata gga atg aaa gat tcg aaa gaa ttt gca ttg gaa ctg ttc gat gca	722
Ile Gly Met Lys Asp Ser Lys Glu Phe Ala Leu Glu Leu Phe Asp Ala	
225 230 235	
ttt agt aga aga aga tta aaa gta gag aaa atc aat cac gat gag	770
Leu Ser Arg Arg Arg Arg Leu Lys Val Glu Lys Ile Asn His Asp Glu	
240 245 250	
ctt tat gag tat tgg tca caa atc aac gac gag agt ttt gat tct cgt	818
Leu Tyr Glu Tyr Trp Ser Gln Ile Asn Asp Glu Ser Phe Asp Ser Arg	
255 260 265	
ctc cag atc ttc ttc gac ata gtg gac aag aat gaa gat ggg aga att	866
Leu Gln Ile Phe Phe Asp Ile Val Asp Lys Asn Glu Asp Gly Arg Ile	
270 275 280	
aca gaa gag gaa gta aaa gag ata ata atg ttg agt gca tct gca aat	914
Thr Glu Glu Glu Val Lys Glu Ile Ile Met Leu Ser Ala Ser Ala Asn	
285 290 295 300	
aag cta tca aga tta aag gaa caa gca gag gaa tat gca gct ttg att	962
Lys Leu Ser Arg Leu Lys Glu Gln Ala Glu Glu Tyr Ala Ala Leu Ile	
305 310 315	
atg gaa gag tta gat cct gaa aga ctt ggc tac ata gag cta tgg caa	1010
Met Glu Glu Leu Asp Pro Glu Arg Leu Gly Tyr Ile Glu Leu Trp Gln	
320 325 330	
cta gag act ttg ctt cta caa aaa gac aca tac ctc aat tac agt caa	1058
Leu Glu Thr Leu Leu Leu Gln Lys Asp Thr Tyr Leu Asn Tyr Ser Gln	
335 340 345	
gca ttg agc tat acg agc caa gca ttg agc caa aac ctt caa ggg tta	1106

Ala Leu Ser Tyr Thr Ser Gln Ala Leu Ser Gln Asn Leu Gln Gly Leu			
350	355	360	
agg gga aag agt cga ata cat aga atg agt tcg gat ttc gtc tac att			1154
Arg Gly Lys Ser Arg Ile His Arg Met Ser Ser Asp Phe Val Tyr Ile			
365	370	375	380
atg caa gag aat tgg aaa agg ata tgg gtt tta tcc tta tgg atc atg			1202
Met Gln Glu Asn Trp Lys Arg Ile Trp Val Leu Ser Leu Trp Ile Met			
385	390	395	
atc atg atc gga tta ttc ttg tgg aaa ttc ttc caa tac aag caa aaa			1250
Ile Met Ile Gly Leu Phe Leu Trp Lys Phe Phe Gln Tyr Lys Gln Lys			
400	405	410	
gat gca ttt cat gtg atg gga tat tgt tta ctc aca gcc aaa gga gca			1298
Asp Ala Phe His Val Met Gly Tyr Cys Leu Leu Thr Ala Lys Gly Ala			
415	420	425	
gct gaa aca ctt aaa ttc aac atg gct cta ata ctt ttc cca gtt tgc			1346
Ala Glu Thr Leu Lys Phe Asn Met Ala Leu Ile Leu Phe Pro Val Cys			
430	435	440	
aga aac acc att act tgg ctt aga tcc aca aga ctc tct tac ttc gtt			1394
Arg Asn Thr Ile Thr Trp Leu Arg Ser Thr Arg Leu Ser Tyr Phe Val			
445	450	455	460
cct ttt gat gat aat atc aac ttc cac aag aca att gct gga gcc att			1442
Pro Phe Asp Asp Asn Ile Asn Phe His Lys Thr Ile Ala Gly Ala Ile			
465	470	475	
gta gta gct gtg atc ctt cat att gga gac cat ctt gct tgt gat ttc			1490
Val Val Ala Val Ile Leu His Ile Gly Asp His Leu Ala Cys Asp Phe			
480	485	490	
cct aga att gtt aga gcc acc gaa tac gat tac aat cgg tat ctg ttt			1538
Pro Arg Ile Val Arg Ala Thr Glu Tyr Asp Tyr Asn Arg Tyr Leu Phe			
495	500	505	
cat tac ttt caa aca aaa cag cca aca tac ttc gac ctc gtt aag gga			1586
His Tyr Phe Gln Thr Lys Gln Pro Thr Tyr Phe Asp Leu Val Lys Gly			
510	515	520	
cct gaa gga atc act ggg att tta atg gtc att ttg atg att att tca			1634
Pro Glu Gly Ile Thr Gly Ile Leu Met Val Ile Leu Met Ile Ile Ser			
525	530	535	540
ttc aca tta gca aca aga tgg ttt agg cgt aac cta gtc aag ctt cct			1682
Phe Thr Leu Ala Thr Arg Trp Phe Arg Arg Asn Leu Val Lys Leu Pro			
545	550	555	
aag cca ttt gat cga cta acc ggt ttt aac gcc ttt tgg tat tcg cat			1730
Lys Pro Phe Asp Arg Leu Thr Gly Phe Asn Ala Phe Trp Tyr Ser His			
560	565	570	
cat ttg ttc gtc att gtt tat atc ttg ctt att ctt cat ggt atc ttc			1778
His Leu Phe Val Ile Val Tyr Ile Leu Leu Ile Leu His Gly Ile Phe			
575	580	585	
ctc tat ttc gcc aag cct tgg tat gtt cgt acg aca tgg atg tat ctt			1826
Leu Tyr Phe Ala Lys Pro Trp Tyr Val Arg Thr Thr Trp Met Tyr Leu			
590	595	600	
gca gta cca gtt tta ctc tat ggt gga gaa aga acà ctt agg tac ttc			1874
Ala Val Pro Val Leu Leu Tyr Gly Gly Glu Arg Thr Leu Arg Tyr Phe			
605	610	615	620
cgt tct ggt tct tat tcg gtt cga ctg ctt aag gtt gct ata tat cct			1922
Arg Ser Gly Ser Tyr Ser Val Arg Leu Leu Lys Val Ala Ile Tyr Pro			
625	630	635	
ggt aat gtt cta acg cta caa atg tcg aaa cca act caa ttt cgt tac			1970
Gly Asn Val Leu Thr Leu Gln Met Ser Lys Pro Thr Gln Phe Arg Tyr			
640	645	650	
aaa agc gga caa tac atg ttt gtc caa tgt cct gcg gtt tcg cca ttc			2018
Lys Ser Gly Gln Tyr Met Phe Val Gln Cys Pro Ala Val Ser Pro Phe			
655	660	665	
gag tgg cat cca ttc tca att act tcc gca cct gaa gat gat tat atc			2066
Glu Trp His Pro Phe Ser Ile Thr Ser Ala Pro Glu Asp Asp Tyr Ile			

670	675	680	
agc att cac att aga caa ctt ggt gat tgg act caa gaa ctc aaa aga			2114
Ser Ile His Ile Arg Gln Leu Gly Asp Trp Thr Gln Glu Leu Lys Arg			
685 690 695 700			
gta ttc tct gaa gtt tgt gag cca ccg gtt ggc ggt aaa agc gga ctt			2162
Val Phe Ser Glu Val Cys Glu Pro Pro Val Gly Gly Lys Ser Gly Leu			
705 710 715			
ctc aga gcc gac gaa aca aca aag aaa agt ttg cca aag cta ttg ata			2210
Leu Arg Ala Asp Glu Thr Thr Lys Ser Leu Pro Lys Leu Leu Ile			
720 725 730			
gat gga ccg tac ggt gca cca gca caa gat tat agg aaa tat gat gtt			2258
Asp Gly Pro Tyr Gly Ala Pro Ala Gln Asp Tyr Arg Lys Tyr Asp Val			
735 740 745			
ctc tta tta gtt ggt ctt ggc att ggt gca act cca ttt atc agt atc			2306
Leu Leu Leu Val Gly Leu Gly Ile Gly Ala Thr Pro Phe Ile Ser Ile			
750 755 760			
ttg aaa gat ttg ctt aac aac att gtt aaa atg gaa gag cat gcg gat			2354
Leu Lys Asp Leu Leu Asn Asn Ile Val Lys Met Glu Glu His Ala Asp			
765 770 775 780			
tcg atc tcg gat ttc agt aga tca tca gaa tac agc aca gga agc aac			2402
Ser Ile Ser Asp Phe Ser Arg Ser Ser Glu Tyr Ser Thr Gly Ser Asn			
785 790 795			
ggt gac acg cca aga cga aag aga ata cta aaa acc aca aat gct tat			2450
Gly Asp Thr Pro Arg Arg Lys Arg Ile Leu Lys Thr Thr Asn Ala Tyr			
800 805 810			
ttc tac tgg gtc aca aga gaa caa ggc tct ttt gat tgg ttc aaa ggt			2498
Phe Tyr Trp Val Thr Arg Glu Gln Gly Ser Phe Asp Trp Phe Lys Gly			
815 820 825			
gtc atg aac gaa gtt gca gaa ctt gac caa cgg ggt gtg ata gag atg			2546
Val Met Asn Glu Val Ala Glu Leu Asp Gln Arg Gly Val Ile Glu Met			
830 835 840			
cat aac tat tta aca agt gtg tat gaa gaa ggt gat gct cgt tct gct			2594
His Asn Tyr Leu Thr Ser Val Tyr Glu Glu Gly Asp Ala Arg Ser Ala			
845 850 855 860			
ctc att aca atg gtt caa gct ctt aat cat gcc aaa aat ggt gtc gac			2642
Leu Ile Thr Met Val Gln Ala Leu Asn His Ala Lys Asn Gly Val Asp			
865 870 875			
att gtc tct ggc act agg gtc aga aca cac ttt gca aga cct aat tgg			2690
Ile Val Ser Gly Thr Arg Val Arg Thr His Phe Ala Arg Pro Asn Trp			
880 885 890			
aag aag gtt ctc aca aag cta agt tcc aag cat tgc aat gca aga aca			2738
Lys Lys Val Leu Thr Lys Leu Ser Ser Lys His Cys Asn Ala Arg Thr			
895 900 905			
gga gtg ttt tat tgc gga gta ccg gtt tta ggg aag gag ctt agc aaa			2786
Gly Val Phe Tyr Cys Gly Val Pro Val Leu Gly Lys Glu Leu Ser Lys			
910 915 920			
cta tgc aac aca ttc aat caa aaa ggt tca acc aag ttt gaa ttt cac			2834
Leu Cys Asn Thr Phe Asn Gln Lys Gly Ser Thr Lys Phe Glu Phe His			
925 930 935 940			
aag gag cat ttc taaaagacaa gaaggaagaa gccaaaagcc ctctagattc			2886
Lys Glu His Phe			
tttaatatct caaattttagc cacttatagt ataaaggcaa tctcttcact attaattca			2946
aagtgattaa acgttaacac actgtcaaaa gtgagtgtgt taacgtttag ctccacacgt			3006
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<212> PRT

<213> Arabidopsis thaliana

<400> 12

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Thr	Glu	Tyr	Ser	Ile	Asn	Gly	Asp	Gln	Glu	Phe	Val	Glu	Val	Thr	Ile
				35				40				45			
Asp	Leu	Gln	Asp	Asp	Asp	Thr	Ile	Val	Leu	Arg	Ser	Val	Glu	Pro	Ala
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Thr	Ala	Ile	Asn	Val	Ile	Gly	Asp	Ile	Ser	Asp	Asp	Asn	Thr	Gly	Ile
				65				70				75			80
Met	Thr	Pro	Val	Ser	Ile	Ser	Arg	Ser	Pro	Thr	Met	Lys	Arg	Thr	Ser
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Ser	Asn	Arg	Phe	Arg	Gln	Phe	Ser	Gln	Glu	Leu	Lys	Ala	Glu	Ala	Val
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Ala	Lys	Ala	Lys	Gln	Leu	Ser	Gln	Glu	Leu	Lys	Arg	Phe	Ser	Trp	Ser
				115				120				125			
Arg	Ser	Phe	Ser	Gly	Asn	Leu	Thr	Thr	Ser	Thr	Ala	Ala	Asn	Gln	
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Ser	Gly	Gly	Ala	Gly	Gly	Gly	Leu	Val	Asn	Ser	Ala	Leu	Glu	Ala	Arg
				145				150				155			160
Ala	Leu	Arg	Lys	Gln	Arg	Ala	Gln	Leu	Asp	Arg	Thr	Arg	Ser	Ser	Ala
				165				170				175			
Gln	Arg	Ala	Leu	Arg	Gly	Leu	Arg	Phe	Ile	Ser	Asn	Gln	Lys	Asn	
				180				185				190			
Val	Asp	Gly	Trp	Asn	Asp	Val	Gln	Ser	Asn	Phe	Glu	Lys	Phe	Glu	Lys
				195				200				205			
Asn	Gly	Tyr	Ile	Tyr	Arg	Ser	Asp	Phe	Ala	Gln	Cys	Ile	Gly	Met	Lys
				210				215				220			
Asp	Ser	Lys	Glu	Phe	Ala	Leu	Glu	Leu	Phe	Asp	Ala	Leu	Ser	Arg	Arg
				225				230				235			240
Arg	Arg	Leu	Lys	Val	Glu	Lys	Ile	Asn	His	Asp	Glu	Leu	Tyr	Glu	Tyr
				245				250				255			
Trp	Ser	Gln	Ile	Asn	Asp	Glu	Ser	Phe	Asp	Ser	Arg	Leu	Gln	Ile	Phe
				260				265				270			
Phe	Asp	Ile	Val	Asp	Lys	Asn	Glu	Asp	Gly	Arg	Ile	Thr	Glu	Glu	
				275				280				285			
Val	Lys	Glu	Ile	Ile	Met	Leu	Ser	Ala	Ser	Ala	Asn	Lys	Leu	Ser	Arg
				290				295				300			
Leu	Lys	Glu	Gln	Ala	Glu	Glu	Tyr	Ala	Ala	Leu	Ile	Met	Glu	Glu	Leu
				305				310				315			320
Asp	Pro	Glu	Arg	Leu	Gly	Tyr	Ile	Glu	Leu	Trp	Gln	Leu	Glu	Thr	Leu
				325				330				335			
Leu	Leu	Gln	Lys	Asp	Thr	Tyr	Leu	Asn	Tyr	Ser	Gln	Ala	Leu	Ser	Tyr
				340				345				350			
Thr	Ser	Gln	Ala	Leu	Ser	Gln	Asn	Leu	Gln	Gly	Leu	Arg	Gly	Lys	Ser
				355				360				365			
Arg	Ile	His	Arg	Met	Ser	Ser	Asp	Phe	Val	Tyr	Ile	Met	Gln	Glu	Asn
				370				375				380			
Trp	Lys	Arg	Ile	Trp	Val	Leu	Ser	Leu	Trp	Ile	Met	Ile	Met	Ile	Gly
				385				390				395			400
Leu	Phe	Leu	Trp	Lys	Phe	Phe	Gln	Tyr	Lys	Gln	Lys	Asp	Ala	Phe	His
				405				410				415			
Val	Met	Gly	Tyr	Cys	Leu	Leu	Thr	Ala	Lys	Gly	Ala	Ala	Glu	Thr	Leu
				420				425				430			
Lys	Phe	Asn	Met	Ala	Leu	Ile	Leu	Phe	Pro	Val	Cys	Arg	Asn	Thr	Ile
				435				440				445			
Thr	Trp	Leu	Arg	Ser	Thr	Arg	Leu	Ser	Tyr	Phe	Val	Pro	Phe	Asp	Asp
				450				455				460			
Asn	Ile	Asn	Phe	His	Lys	Thr	Ile	Ala	Gly	Ala	Ile	Val	Val	Ala	Val
				465				470				475			480

Ile Leu His Ile Gly Asp His Leu Ala Cys Asp Phe Pro Arg Ile Val
 485 490 495
 Arg Ala Thr Glu Tyr Asp Tyr Asn Arg Tyr Leu Phe His Tyr Phe Gln
 500 505 510
 Thr Lys Gln Pro Thr Tyr Phe Asp Leu Val Lys Gly Pro Glu Gly Ile
 515 520 525
 Thr Gly Ile Leu Met Val Ile Leu Met Ile Ile Ser Phe Thr Leu Ala
 530 535 540
 Thr Arg Trp Phe Arg Arg Asn Leu Val Lys Leu Pro Lys Pro Phe Asp
 545 550 555 560
 Arg Leu Thr Gly Phe Asn Ala Phe Trp Tyr Ser His His Leu Phe Val
 565 570 575
 Ile Val Tyr Ile Leu Leu Ile Leu His Gly Ile Phe Leu Tyr Phe Ala
 580 585 590
 Lys Pro Trp Tyr Val Arg Thr Thr Trp Met Tyr Leu Ala Val Pro Val
 595 600 605
 Leu Leu Tyr Gly Gly Glu Arg Thr Leu Arg Tyr Phe Arg Ser Gly Ser
 610 615 620
 Tyr Ser Val Arg Leu Leu Lys Val Ala Ile Tyr Pro Gly Asn Val Leu
 625 630 635 640
 Thr Leu Gln Met Ser Lys Pro Thr Gln Phe Arg Tyr Lys Ser Gly Gln
 645 650 655
 Tyr Met Phe Val Gln Cys Pro Ala Val Ser Pro Phe Glu Trp His Pro
 660 665 670
 Phe Ser Ile Thr Ser Ala Pro Glu Asp Asp Tyr Ile Ser Ile His Ile
 675 680 685
 Arg Gln Leu Gly Asp Trp Thr Gln Glu Leu Lys Arg Val Phe Ser Glu
 690 695 700
 Val Cys Glu Pro Pro Val Gly Gly Lys Ser Gly Leu Leu Arg Ala Asp
 705 710 715 720
 Glu Thr Thr Lys Lys Ser Leu Pro Lys Leu Leu Ile Asp Gly Pro Tyr
 725 730 735
 Gly Ala Pro Ala Gln Asp Tyr Arg Lys Tyr Asp Val Leu Leu Val
 740 745 750
 Gly Leu Gly Ile Gly Ala Thr Pro Phe Ile Ser Ile Leu Lys Asp Leu
 755 760 765
 Leu Asn Asn Ile Val Lys Met Glu Glu His Ala Asp Ser Ile Ser Asp
 770 775 780
 Phe Ser Arg Ser Ser Glu Tyr Ser Thr Gly Ser Asn Gly Asp Thr Pro
 785 790 795 800
 Arg Arg Lys Arg Ile Leu Lys Thr Thr Asn Ala Tyr Phe Tyr Trp Val
 805 810 815
 Thr Arg Glu Gln Gly Ser Phe Asp Trp Phe Lys Gly Val Met Asn Glu
 820 825 830
 Val Ala Glu Leu Asp Gln Arg Gly Val Ile Glu Met His Asn Tyr Leu
 835 840 845
 Thr Ser Val Tyr Glu Glu Gly Asp Ala Arg Ser Ala Leu Ile Thr Met
 850 855 860
 Val Gln Ala Leu Asn His Ala Lys Asn Gly Val Asp Ile Val Ser Gly
 865 870 875 880
 Thr Arg Val Arg Thr His Phe Ala Arg Pro Asn Trp Lys Lys Val Leu
 885 890 895
 Thr Lys Leu Ser Ser Lys His Cys Asn Ala Arg Thr Gly Val Phe Tyr
 900 905 910
 Cys Gly Val Pro Val Leu Gly Lys Glu Leu Ser Lys Leu Cys Asn Thr
 915 920 925
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<212> DNA
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<220>
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 <222> (132)..(2894)
 <223> coding for NADPH oxidase

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 tctcgaattc g atg aaa atg aga cga ggc aat tca agt aac gac cat gaa 170
 Met Lys Met Arg Arg Gly Asn Ser Ser Asn Asp His Glu
 1 5 10
 ctt ggg att cta cga gga gct aac tcg gac acc aac tcg gac acg gag 218
 Leu Gly Ile Leu Arg Gly Ala Asn Ser Asp Thr Asn Ser Asp Thr Glu
 15 20 25
 agc atc gct agc gac cgt ggt gcc ttt agc ggt ccg ctt ggc cgg cct 266
 Ser Ile Ala Ser Asp Arg Gly Ala Phe Ser Gly Pro Leu Gly Arg Pro
 30 35 40 45
 aaa cgt gcg tcc aag aaa aac gca aga ttc gcc gac gat ctt ccc aag 314
 Lys Arg Ala Ser Lys Lys Asn Ala Arg Phe Ala Asp Asp Leu Pro Lys
 50 55 60
 aga agc aat agt gtt gct ggc ggc cgt ggt gat gac gat gag tac gtg 362
 Arg Ser Asn Ser Val Ala Gly Arg Gly Asp Asp Asp Glu Tyr Val
 65 70 75
 gag atc acg cta gac atc agg gac tcg gtg gcc gtc cat agt gtc 410
 Glu Ile Thr Leu Asp Ile Arg Asp Asp Ser Val Ala Val His Ser Val
 80 85 90
 caa caa gca gct gga ggt gga ggc cac ctg gag gac ccg gag cta gcc 458
 Gln Gln Ala Ala Gly Gly His Leu Glu Asp Pro Glu Leu Ala
 95 100 105
 ctt ctt acg aag aag act ctc gag agc agc ctc aac aac acc acc tcc 506
 Leu Leu Thr Lys Lys Thr Leu Glu Ser Ser Leu Asn Asn Thr Thr Ser
 110 115 120 125
 tta tct ttc ttc cga agc acc tcc tca cgc atc aag aac gcc tcc cgc 554
 Leu Ser Phe Phe Arg Ser Thr Ser Arg Ile Lys Asn Ala Ser Arg
 130 135 140
 gag ctc cgc cgc gtg ttc tct aga cgt ccc tcc ccg gcc gtg cgg cgg 602
 Glu Leu Arg Arg Val Phe Ser Arg Arg Pro Ser Pro Ala Val Arg Arg
 145 150 155
 ttt gac cgc acg agc tcc gcg gcc atc cac gca ctc aaa ggt ctc aag 650
 Phe Asp Arg Thr Ser Ser Ala Ala Ile His Ala Leu Lys Gly Leu Lys
 160 165 170
 ttc att gcc acc aag acg gcc gca tgg ccg gcc gtc gac caa cgt ttc 698
 Phe Ile Ala Thr Lys Thr Ala Ala Trp Pro Ala Val Asp Gln Arg Phe
 175 180 185
 gat aaa ctc tcc gct gat tcc aac ggc ctc tta ctc tct gcc aag ttt 746
 Asp Lys Leu Ser Ala Asp Ser Asn Gly Leu Leu Ser Ala Lys Phe
 190 195 200 205
 tgg gaa tgc tta gga atg aat aag gaa tct aaa gac ttc gct gac cag 794
 Trp Glu Cys Leu Gly Met Asn Lys Glu Ser Lys Asp Phe Ala Asp Gln
 210 215 220
 ctc ttt aga gca tta gct cgc cgg aat aac gtc tcc ggc gat gca atc 842
 Leu Phe Arg Ala Leu Ala Arg Arg Asn Asn Val Ser Gly Asp Ala Ile
 225 230 235
 aca aag gaa cag ctt agg ata ttc tgg gaa cag atc tcg gac gaa agc 890
 Thr Lys Glu Gln Leu Arg Ile Phe Trp Glu Gln Ile Ser Asp Glu Ser
 240 245 250
 ttt gat gcc aaa ctc caa gtc ttt ttt gac atg gtg gac aaa gat gaa 938
 Phe Asp Ala Lys Leu Gln Val Phe Phe Asp Met Val Asp Lys Asp Glu

255	260	265	
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Asp Gly Arg Val Thr Glu Glu Glu Val Ala Glu Ile Ile Ser Leu Ser			
270 275 280 285			
gct tct gca aac aag ctc tca aat att caa aag caa gcc aaa gaa tat			1034
Ala Ser Ala Asn Lys Leu Ser Asn Ile Gln Lys Gln Ala Lys Glu Tyr			
290 295 300			
gcg gca ctg ata atg gaa gag ttg gac cca gac aat gct ggg ttt att			1082
Ala Ala Leu Ile Met Glu Glu Leu Asp Pro Asp Asn Ala Gly Phe Ile			
305 310 315			
atg atc gaa aac ttg gaa atg ttg cta tta caa gca ccg aac cag tcg			1130
Met Ile Glu Asn Leu Glu Met Leu Leu Gln Ala Pro Asn Gln Ser			
320 325 330			
gtg cgg atg gga gac agc agg ata ctt agt cag atg tta agt cag aag			1178
Val Arg Met Gly Asp Ser Arg Ile Leu Ser Gln Met Leu Ser Gln Lys			
335 340 345			
ctt aga ccg gca aaa gag agc aac cct tta ttg aga tgg tcg gag aaa			1226
Leu Arg Pro Ala Lys Glu Ser Asn Pro Leu Leu Arg Trp Ser Glu Lys			
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Tyr Lys Asn Lys Ala Ala Tyr Gly Val Met Gly Tyr Cys Val Cys Val			
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Cys Arg Asn Thr Ile Thr Trp Leu Arg Asn Lys Thr Lys Leu Gly Thr			
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Ala Pro Ala Leu Thr Lys Glu Leu Arg Gln His Ala Leu Asp Phe Ser			
910	915	920	925
cac aag aca tct acc aag ttt gat ttc cat aaa gaa aat ttt			3129
His Lys Thr Ser Thr Lys Phe Asp Phe His Lys Glu Asn Phe			
930	935		
tgagcaaaga atagaccatt aagcagagca ttaaaatttc atcaaaacag ctaaggacac			3189
agggtgtttt atagaagtct accaactctc cctattgtgt acagataatg ttgcacttca			3249
agttgatata tagttgtgg tttgtatgtca gtatattaca aaataataag attatttta			3309
ttttagtagtaa aaaaaaaaaaaaaaaa aaaaaaaaaaaaaaaa			3338

<210> 16
 <211> 939
 <212> PRT
 <213> Nicotiana tabacum

<220>
 <221> misc_feature
 <222> (547)..(547)
 <223> The 'Xaa' at location 547 stands for Tyr, Cys, Ser, or Phe.

<400> 16

Met Gln Asn Ser Glu Asn His His Pro His His Gln His His Ser			
1	5	10	15
Asp Thr Glu Ile Ile Gly Asn Asp Arg Ala Ser Tyr Ser Gly Pro Leu			
20	25	30	
Ser Gly Pro Leu Asn Lys Arg Gly Gly Lys Lys Ser Ala Arg Phe Asn			
35	40	45	
Ile Pro Glu Ser Thr Asp Ile Gly Thr Ser Val Gly Thr Gly Gly Lys			
50	55	60	
Ser Asn Asp Asp Ala Tyr Val Glu Ile Thr Leu Asp Val Arg Glu Asp			
65	70	75	80
Ser Val Ala Val His Ser Val Lys Thr Ala Gly Gly Asp Asp Val Glu			
85	90	95	
Asp Pro Glu Leu Ala Leu Leu Ala Lys Gly Leu Glu Lys Lys Ser Thr			
100	105	110	
Leu Gly Ser Ser Leu Val Arg Asn Ala Ser Ser Arg Ile Arg Gln Val			
115	120	125	
Ser Gln Glu Leu Arg Arg Leu Ala Ser Leu Asn Lys Arg Pro Ile Pro			
130	135	140	
Thr Gly Arg Phe Asp Arg Asn Lys Ser Ala Ala Ala His Ala Leu Lys			
145	150	155	160
Gly Leu Lys Phe Ile Ser Lys Thr Asp Gly Gly Ala Gly Trp Ala Ala			
165	170	175	
Val Glu Lys Arg Phe Asp Glu Ile Thr Ala Ser Thr Thr Gly Leu Leu			

180	185	190
Pro Arg Ala Lys Phe Gly Glu Cys Ile Gly Met Asn Lys		Glu Ser Lys
195	200	205
Glu Phe Ala Val Glu Leu Tyr Asp Ala Leu Ala Arg Arg	Arg Asn Ile	
210	215	220
Thr Thr Asp Ser Ile Asn Lys Ala Gln Leu Lys	Glu Phe Trp Asp Gln	
225	230	235
Val Ala Asp Gln Ser Phe Asp Ser Arg	Leu Gln Thr Phe Phe Asp Met	
245	250	255
Val Asp Lys Asp Ala Asp Gly Arg Ile	Thr Glu Glu Glu Val Arg Glu	
260	265	270
Ile Ile Gly Leu Ser Ala Ser Ala Asn Arg Leu Ser	Thr Ile Gln Lys	
275	280	285
Gln Ala Asp Glu Tyr Ala Ala Met Ile Met Glu Glu	Leu Asp Pro Asn	
290	295	300
Asn Leu Gly Tyr Ile Met Ile Glu Asn Leu Glu	Met Leu Leu Leu Gln	
305	310	315
320		
Ala Pro Asn Gln Ser Val Gln Arg Gly Gly	Glu Ser Arg Asn Leu Ser	
325	330	335
Gln Met Leu Ser Gln Lys Leu Lys	His Thr Gln Glu Arg Asn Pro Ile	
340	345	350
Val Arg Trp Tyr Lys Ser Phe Met Tyr Phe Leu Leu	Asp Asn Trp Gln	
355	360	365
Arg Val Trp Val Leu Leu Trp Ile Gly Ile Met	Ala Gly Leu Phe	
370	375	380
Thr Trp Lys Tyr Ile Gln Tyr Lys Glu Lys Ala	Ala Tyr Lys Val Met	
385	390	395
400		
Gly Pro Cys Val Cys Phe Ala Lys Gly Ala Ala Glu	Thr Leu Lys Leu	
405	410	415
Asn Met Ala Ile Ile Leu Phe Pro Val Cys Arg Asn	Thr Ile Thr Trp	
420	425	430
Leu Arg Asn Lys Thr Arg Leu Gly Ala Ala Val Pro	Phe Asp Asp Asn	
435	440	445
Leu Asn Phe His Lys Val Ile Ala Val Ala Ile	Ala Leu Gly Val Gly	
450	455	460
Ile His Gly Leu Ser His Leu Thr Cys Asp Phe	Pro Arg Leu Leu Asn	
465	470	475
480		
Ala Ser Glu Glu Glu Tyr Glu Pro Met Lys	Tyr Tyr Phe Gly Asp Gln	
485	490	495
Pro Glu Ser Tyr Trp Trp Phe Ile Lys	Gly Val Glu Gly Val Thr Gly	
500	505	510
Ile Ile Met Val Val Leu Met Ala Ile Ala Phe	Thr Leu Ala Thr Pro	
515	520	525
Trp Phe Arg Arg Asn Arg Val Ser Leu Pro Lys	Pro Phe His Lys Leu	
530	535	540
Thr Gly Xaa Asn Ala Phe Trp Tyr Ser His His	Leu Phe Val Ile Val	
545	550	555
560		
Tyr Thr Leu Phe Ile Val His Gly Glu Lys Leu	Tyr Ile Thr Lys Asp	
565	570	575
Trp Tyr Lys Arg Thr Asp Met Asp Val Leu Leu	Thr Ile Pro Ile Ile	
580	585	590
Leu Tyr Ala Ser Glu Arg Leu Ile Arg Ala Phe	Arg Ser Ser Ile Lys	
595	600	605
Ala Val Lys Ile Leu Lys Val Ala Val Tyr Pro	Gly Asn Val Leu Ala	
610	615	620
Leu His Met Ser Lys Pro Gln Gly Tyr Lys	Tyr Lys Ser Gly Gln Tyr	
625	630	635
640		
Met Phe Val Asn Cys Ala Ala Val Ser Pro Phe	Glu Trp His Pro Phe	
645	650	655
Ser Ile Thr Ser Ala Pro Gly Asp Asp Tyr Leu	Ser Val His Ile Arg	
660	665	670

Thr	Leu	Gly	Asp	Trp	Thr	Arg	Gln	Leu	Lys	Thr	Val	Phe	Ser	Glu	Val
675							680					685			
Cys	Gln	Pro	Pro	Pro	Asn	Gly	Lys	Ser	Gly	Leu	Leu	Arg	Ala	Asp	Tyr
690						695					700				
Leu	Gln	Gly	Glu	Asn	Asn	Pro	Asn	Phe	Pro	Arg	Val	Leu	Ile	Asp	Gly
705						710					715				720
Pro	Tyr	Gly	Ala	Pro	Ala	Gln	Asp	Tyr	Lys	Lys	Tyr	Glu	Val	Val	Leu
						725			730					735	
Leu	Val	Gly	Leu	Gly	Ile	Gly	Ala	Thr	Pro	Met	Ile	Ser	Ile	Val	Lys
						740			745					750	
Asp	Ile	Val	Asn	Asn	Met	Lys	Ala	Met	Asp	Glu	Glu	Glu	Asn	Ser	Leu
						755			760					765	
Glu	Asp	Gly	His	Asn	Asn	Asn	Met	Ala	Pro	Asn	Ser	Ser	Pro	Asn	Ile
						770			775					780	
Ala	Lys	Asn	Lys	Gly	Asn	Lys	Ser	Gly	Ser	Ala	Ser	Gly	Gly	Asn	Asn
						785			790			795			800
Phe	Asn	Thr	Arg	Arg	Ala	Tyr	Phe	Tyr	Trp	Val	Thr	Arg	Glu	Gln	Gly
						805					810				815
Ser	Phe	Asp	Trp	Phe	Lys	Gly	Ile	Met	Asn	Glu	Ala	Ala	Glu	Met	Asp
						820					825				830
His	Lys	Gly	Val	Ile	Glu	Met	His	Asn	Tyr	Cys	Thr	Ser	Val	Tyr	Glu
						835			840					845	
Glu	Gly	Asp	Ala	Arg	Ser	Ala	Leu	Ile	Thr	Met	Leu	Gln	Ser	Leu	His
						850			855					860	
His	Ala	Lys	Asn	Gly	Val	Asp	Ile	Val	Ser	Gly	Thr	Arg	Val	Lys	Ser
						865			870			875			880
His	Phe	Ala	Lys	Pro	Asn	Trp	Arg	Asn	Val	Tyr	Lys	Arg	Ile	Ala	Leu
						885					890				895
Asn	His	Pro	Glu	Ala	Lys	Val	Gly	Val	Phe	Tyr	Cys	Gly	Ala	Pro	Ala
						900					905				910
Leu	Thr	Lys	Glu	Leu	Arg	Gln	His	Ala	Leu	Asp	Phe	Ser	His	Lys	Thr
						915					920				925
Ser	Thr	Lys	Phe	Asp	Phe	His	Lys	Glu	Asn	Phe					
						930			935						

<210> 17
<211> 2532
<212> DNA
<213> *Oryza sativa*

<220>
<221> CDS
<222> (1)..(2529)
<223> coding for NADPH oxidase

```

<400> 17
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Met Ala Ser Pro Tyr Asp His Gln Ser Pro His Ala Gln His Pro Ser
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Gly Leu Pro Arg Pro Pro Gly Ala Gly Ala Gly Ala Ala Gly Gly
20 25 30
ttc gcg cgg ggg ctg atg aag cag ccg tcg ccg ctg gcg tcc ggg gtg 144
Phe Ala Arg Gly Leu Met Lys Gln Pro Ser Arg Leu Ala Ser Gly Val
35 40 45
agg cag ttc tcg agg gtg tcg atg aag gtg ccg gag ggg gtg ggg 192
Arg Gln Phe Ala Ser Arg Val Ser Met Lys Val Pro Glu Gly Val Gly
50 55 60
ggg atg cgg ccc ggt ggc ggg agg atg acg ccg atg cag tcc agc gcg 240
Gly Met Arg Pro Gly Gly Arg Met Thr Arg Met Gln Ser Ser Ala
65 70 75 80

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cag gtg ggg ctc cgg ggg ctc cgc ttc ctc gac aag acg tcc ggc ggg	288
Gln Val Gly Leu Arg Gly Leu Arg Phe Leu Asp Lys Thr Ser Gly Gly	
85 90 95	
aag gag ggg tgg aag tcc gtc gag cgc cgc ttc gac gag atg aac cgc	336
Lys Glu Gly Trp Lys Ser Val Glu Arg Arg Phe Asp Glu Met Asn Arg	
100 105 110	
aac ggc cgc ctc ccc aag gag agc ttc ggc aag tgc atc ggc atg ggg	384
Asn Gly Arg Leu Pro Lys Glu Ser Phe Gly Lys Cys Ile Gly Met Gly	
115 120 125	
gac tcc aag gag ttc gcc ggc gag ctg ttc gtg ggc ctg gcg cgg cgg	432
Asp Ser Lys Glu Phe Ala Gly Glu Leu Phe Val Ala Leu Ala Arg Arg	
130 135 140	
agg aac ctg gag ccc gag gac ggc atc acc aag gag cag ctc aag gag	480
Arg Asn Leu Glu Pro Glu Asp Gly Ile Thr Lys Glu Gln Leu Lys Glu	
145 150 155 160	
ttc tgg gag gag atg acc gac cag aac ttc gac tcc cgg ctt cgc att	528
Phe Trp Glu Glu Met Thr Asp Gln Asn Phe Asp Ser Arg Leu Arg Ile	
165 170 175	
ttc ttt gac atg tgc gac aag aat ggc gat ggg atg ctc acg gaa gat	576
Phe Phe Asp Met Cys Asp Lys Asn Gly Asp Gly Met Leu Thr Glu Asp	
180 185 190	
gag gtc aag gag gtt att ata ctg agt gcg tcc ggc aac aag ctg gcg	624
Glu Val Lys Glu Val Ile Ile Leu Ser Ala Ser Ala Asn Lys Leu Ala	
195 200 205	
aag ctg aag gga cac gcg gcg acg tac gcc tcc atc atg gag gag	672
Lys Leu Lys Gly His Ala Ala Thr Tyr Ala Ser Leu Ile Met Glu Glu	
210 215 220	
ctg gac ccg gac gac cgc ggg tac atc gag atc tgg cag ctg gag acg	720
Leu Asp Pro Asp Asp Arg Gly Tyr Ile Glu Ile Trp Gln Leu Glu Thr	
225 230 235 240	
ctg ctg cgc ggc atg gtg agc gcg cag gcc gcg ccc gag aag atg aag	768
Leu Leu Arg Gly Met Val Ser Ala Gln Ala Ala Pro Glu Lys Met Lys	
245 250 255	
cgg acg acg tcc agc ctc gcg agg acg atg atc ccg tcc cgg tac cgg	816
Arg Thr Thr Ser Ser Leu Ala Arg Thr Met Ile Pro Ser Arg Tyr Arg	
260 265 270	
agc ccg ctg aag cgg cac gtg tcc agg acg gtg gac ttc gtg cac gag	864
Ser Pro Leu Lys Arg His Val Ser Arg Thr Val Asp Phe Val His Glu	
275 280 285	
aac tgg aag cgg atc tgg ctc gtc gcg ctg tgg ctc gcc gtc aac gtc	912
Asn Trp Lys Arg Ile Trp Leu Val Ala Leu Trp Leu Ala Val Asn Val	
290 295 300	
ggc ctc ttc gcc tac aag ttc gag cag tac gag cgg cgc gcc gcg ttc	960
Gly Leu Phe Ala Tyr Lys Phe Glu Gln Tyr Glu Arg Arg Ala Ala Phe	
305 310 315 320	
cag gtg atg ggc cac tgc gtg tgc gtg gcc aag ggc gcc gcc gag gtg	1008
Gln Val Met Gly His Cys Val Cys Val Ala Lys Gly Ala Ala Glu Val	
325 330 335	
ctc aag ctc aac atg gcg ctc atc ctc ccc gtg tgc cgg aac acg	1056
Leu Lys Leu Asn Met Ala Leu Ile Leu Leu Pro Val Cys Arg Asn Thr	
340 345 350	
ctc acc acg ctc agg tcc acg gcg ctc agc cac gtc atc ccc ttc gac	1104
Leu Thr Thr Leu Arg Ser Thr Ala Leu Ser His Val Ile Pro Phe Asp	
355 360 365	
gac aac atc aac ttc cac aag gtg atc gcc gcg acc atc gcc gcc gcc	1152
Asp Asn Ile Asn Phe His Lys Val Ile Ala Ala Thr Ile Ala Ala Ala	
370 375 380	
acc gcc gtc cac acg ctg gcg cac gtc acc tgc gac ttc ccg agg ctg	1200
Thr Ala Val His Thr Leu Ala His Val Thr Cys Asp Phe Pro Arg Leu	
385 390 395 400	
atc aac tgc ccc acg gac aag ttc atg gcc acg ctg ggg ccg aac ttc	1248

Ile Asn Cys Pro Ser Asp Lys Phe Met Ala Thr Leu Gly Pro Asn Phe			
405	410	415	
ggg tac agg cag ccg acg tac gcc gac ctg ctg gag agc gcc ccc ggc			1296
Gly Tyr Arg Gln Pro Thr Tyr Ala Asp Leu Leu Glu Ser Ala Pro Gly			
420	425	430	
gtc acc ggc atc ctc atg atc atc atc atg tcc ttc tcc ttc acg ctg			1344
Val Thr Gly Ile Leu Met Ile Ile Ile Met Ser Phe Ser Phe Thr Leu			
435	440	445	
gcc acg cac tcc ttc cgc cg ^g agc gtc gtc aag ctg ccg tcg ccg			1392
Ala Thr His Ser Phe Arg Arg Ser Val Val Lys Leu Pro Ser Pro Leu			
450	455	460	
cac cac ctc gcc ggc ttc aac gcc ttc tgg tac gcg cac cac ctc ctg			1440
His His Leu Ala Gly Phe Asn Ala Phe Trp Tyr Ala His His Leu Leu			
465	470	475	480
gtg ctc gcc tac gtc ctc gtc gtg cac tcc tac ttc ata ttc ctc			1488
Val Leu Ala Tyr Val Leu Val Val His Ser Tyr Phe Ile Phe Leu			
485	490	495	
acc agg gag tgg tac aag aaa acg aca tgg atg tac ctg ata gtc cca			1536
Thr Arg Glu Trp Tyr Lys Lys Thr Thr Trp Met Tyr Leu Ile Val Pro			
500	505	510	
gtg ctc ttc tat gca tgc gag aga acg atc aga aaa gtt cga gag aac			1584
Val Leu Phe Tyr Ala Cys Glu Arg Thr Ile Arg Lys Val Arg Glu Asn			
515	520	525	
aac tac cgc gtg agc atc gtc aag gca gcg att tac cca gga aat gtg			1632
Asn Tyr Arg Val Ser Ile Val Lys Ala Ala Ile Tyr Pro Gly Asn Val			
530	535	540	
ctc tct ctt cac atg aag aag ccg ccg ggt ttc aag tac aag agc ggg			1680
Leu Ser Leu His Met Lys Lys Pro Pro Gly Phe Lys Tyr Lys Ser Gly			
545	550	555	560
atg tac ctg ttt gtg aag tgc cct gat gtc tct cct ttc gaa tgg cat			1728
Met Tyr Leu Phe Val Lys Cys Pro Asp Val Ser Pro Phe Glu Trp His			
565	570	575	
ccc ttc tcc atc act tct gca cct gga gat gac tac ctg agt gtg cat			1776
Pro Phe Ser Ile Thr Ser Ala Pro Gly Asp Asp Tyr Leu Ser Val His			
580	585	590	
atc cgt aca cta ggt gac tgg acg act gaa ctc aga aac ctg ttt ggg			1824
Ile Arg Thr Leu Gly Asp Trp Thr Thr Glu Leu Arg Asn Leu Phe Gly			
595	600	605	
aag gct tgc gag gca cag gtt act tct aag aag gct acc ctt tca aga			1872
Lys Ala Cys Glu Ala Gln Val Thr Ser Lys Lys Ala Thr Leu Ser Arg			
610	615	620	
ctt gaa act aca gtt gtg gcg gac gct cag aca gag gat act agg ttt			1920
Leu Glu Thr Thr Val Val Ala Asp Ala Gln Thr Glu Asp Thr Arg Phe			
625	630	635	640
cct aag gtc ctt att gat ggg ccc tat ggt gca ccg gcg caa aac tac			1968
Pro Lys Val Leu Ile Asp Gly Pro Tyr Gly Ala Pro Ala Gln Asn Tyr			
645	650	655	
aag aag tat gac att ctt ttg ctt att ggt ctt gga att ggt gct act			2016
Lys Lys Tyr Asp Ile Leu Leu Ile Gly Leu Gly Ile Gly Ala Thr			
660	665	670	
cct ttc atc agc att ctg aag gat ctg ttg aac aac att aaa tcc aac			2064
Pro Phe Ile Ser Ile Leu Lys Asp Leu Leu Asn Asn Ile Lys Ser Asn			
675	680	685	
gaa gag gtg gaa agc ata cat ggt tct gag ata ggc agc ttc aag aac			2112
Glu Glu Val Glu Ser Ile His Gly Ser Glu Ile Gly Ser Phe Lys Asn			
690	695	700	
aat ggg cca gga aga gct tac ttg tac tgg gtg acc aga gag caa ggg			2160
Asn Gly Pro Gly Arg Ala Tyr Phe Tyr Trp Val Thr Arg Glu Gln Gly			
705	710	715	720
tcc ttc gag tgg ttt aaa gga gtc atg aac gat gtc gct gaa agt gat			2208
Ser Phe Glu Trp Phe Lys Gly Val Met Asn Asp Val Ala Glu Ser Asp			

725	730	735	
cac aat aat att ata gag atg cac aat tac ctg acc agc gtg tat gaa			2256
His Asn Asn Ile Ile Glu Met His Asn Tyr Leu Thr Ser Val Tyr Glu			
740	745	750	
gaa ggc gac gca agg tca gct ttg att gcc atg gtt cag tca ctt caa			2304
Glu Gly Asp Ala Arg Ser Ala Leu Ile Ala Met Val Gln Ser Leu Gln			
755	760	765	
cat gcc aaa aat ggt gtg gat atc gtc tcc ggc agc agg att cgc aca			2352
His Ala Lys Asn Gly Val Asp Ile Val Ser Gly Ser Arg Ile Arg Thr			
770	775	780	
cat ttt gcg agg cct aac tgg aga aag gtg ttc tct gac ttg gcg aat			2400
His Phe Ala Arg Pro Asn Trp Arg Lys Val Phe Ser Asp Leu Ala Asn			
785	790	795	800
gcc cac aaa aac tca cgc ata ggt gtt ttc tat tgt gga tcc cct aca			2448
Ala His Lys Asn Ser Arg Ile Gly Val Phe Tyr Cys Gly Ser Pro Thr			
805	810	815	
ctc acg aaa caa ctc aag gat ctt tca aaa gaa ttc agc cag aca acc			2496
Leu Thr Lys Gln Leu Lys Asp Leu Ser Lys Glu Phe Ser Gln Thr Thr			
820	825	830	
aca act aga ttc cac ttc cac aag gaa aac ttt taa			2532
Thr Thr Arg Phe His Phe His Lys Glu Asn Phe			
835	840		

<210> 18

<211> 843

<212> PRT

<213> Oryza sativa

<400> 18

Met Ala Ser Pro Tyr Asp His Gln Ser Pro His Ala Gln His Pro Ser			
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Gly Leu Pro Arg Pro Pro Gly Ala Gly Ala Gly Ala Ala Gly Gly			
20	25	30	
Phe Ala Arg Gly Leu Met Lys Gln Pro Ser Arg Leu Ala Ser Gly Val			
35	40	45	
Arg Gln Phe Ala Ser Arg Val Ser Met Lys Val Pro Glu Gly Val Gly			
50	55	60	
Gly Met Arg Pro Gly Gly Arg Met Thr Arg Met Gln Ser Ser Ala			
65	70	75	80
Gln Val Gly Leu Arg Gly Leu Arg Phe Leu Asp Lys Thr Ser Gly Gly			
85	90	95	
Lys Glu Gly Trp Lys Ser Val Glu Arg Arg Phe Asp Glu Met Asn Arg			
100	105	110	
Asn Gly Arg Leu Pro Lys Glu Ser Phe Gly Lys Cys Ile Gly Met Gly			
115	120	125	
Asp Ser Lys Glu Phe Ala Gly Glu Leu Phe Val Ala Leu Ala Arg Arg			
130	135	140	
Arg Asn Leu Glu Pro Glu Asp Gly Ile Thr Lys Glu Gln Leu Lys Glu			
145	150	155	160
Phe Trp Glu Glu Met Thr Asp Gln Asn Phe Asp Ser Arg Leu Arg Ile			
165	170	175	
Phe Phe Asp Met Cys Asp Lys Asn Gly Asp Gly Met Leu Thr Glu Asp			
180	185	190	
Glu Val Lys Glu Val Ile Ile Leu Ser Ala Ser Ala Asn Lys Leu Ala			
195	200	205	
Lys Leu Lys Gly His Ala Ala Thr Tyr Ala Ser Leu Ile Met Glu Glu			
210	215	220	
Leu Asp Pro Asp Asp Arg Gly Tyr Ile Glu Ile Trp Gln Leu Glu Thr			
225	230	235	240
Leu Leu Arg Gly Met Val Ser Ala Gln Ala Ala Pro Glu Lys Met Lys			
245	250	255	

Arg Thr Thr Ser Ser Leu Ala Arg Thr Met Ile Pro Ser Arg Tyr Arg
 260 265 270
 Ser Pro Leu Lys Arg His Val Ser Arg Thr Val Asp Phe Val His Glu
 275 280 285
 Asn Trp Lys Arg Ile Trp Leu Val Ala Leu Trp Leu Ala Val Asn Val
 290 295 300
 Gly Leu Phe Ala Tyr Lys Phe Glu Gln Tyr Glu Arg Arg Ala Ala Phe
 305 310 315 320
 Gln Val Met Gly His Cys Val Cys Val Ala Lys Gly Ala Ala Glu Val
 325 330 335
 Leu Lys Leu Asn Met Ala Leu Ile Leu Pro Val Cys Arg Asn Thr
 340 345 350
 Leu Thr Thr Leu Arg Ser Thr Ala Leu Ser His Val Ile Pro Phe Asp
 355 360 365
 Asp Asn Ile Asn Phe His Lys Val Ile Ala Ala Thr Ile Ala Ala Ala
 370 375 380
 Thr Ala Val His Thr Leu Ala His Val Thr Cys Asp Phe Pro Arg Leu
 385 390 395 400
 Ile Asn Cys Pro Ser Asp Lys Phe Met Ala Thr Leu Gly Pro Asn Phe
 405 410 415
 Gly Tyr Arg Gln Pro Thr Tyr Ala Asp Leu Leu Glu Ser Ala Pro Gly
 420 425 430
 Val Thr Gly Ile Leu Met Ile Ile Met Ser Phe Ser Phe Thr Leu
 435 440 445
 Ala Thr His Ser Phe Arg Arg Ser Val Val Lys Leu Pro Ser Pro Leu
 450 455 460
 His His Leu Ala Gly Phe Asn Ala Phe Trp Tyr Ala His His Leu Leu
 465 470 475 480
 Val Leu Ala Tyr Val Leu Leu Val Val His Ser Tyr Phe Ile Phe Leu
 485 490 495
 Thr Arg Glu Trp Tyr Lys Lys Thr Thr Trp Met Tyr Leu Ile Val Pro
 500 505 510
 Val Leu Phe Tyr Ala Cys Glu Arg Thr Ile Arg Lys Val Arg Glu Asn
 515 520 525
 Asn Tyr Arg Val Ser Ile Val Lys Ala Ala Ile Tyr Pro Gly Asn Val
 530 535 540
 Leu Ser Leu His Met Lys Lys Pro Pro Gly Phe Lys Tyr Lys Ser Gly
 545 550 555 560
 Met Tyr Leu Phe Val Lys Cys Pro Asp Val Ser Pro Phe Glu Trp His
 565 570 575
 Pro Phe Ser Ile Thr Ser Ala Pro Gly Asp Asp Tyr Leu Ser Val His
 580 585 590
 Ile Arg Thr Leu Gly Asp Trp Thr Thr Glu Leu Arg Asn Leu Phe Gly
 595 600 605
 Lys Ala Cys Glu Ala Gln Val Thr Ser Lys Lys Ala Thr Leu Ser Arg
 610 615 620
 Leu Glu Thr Thr Val Val Ala Asp Ala Gln Thr Glu Asp Thr Arg Phe
 625 630 635 640
 Pro Lys Val Leu Ile Asp Gly Pro Tyr Gly Ala Pro Ala Gln Asn Tyr
 645 650 655
 Lys Lys Tyr Asp Ile Leu Leu Leu Ile Gly Leu Gly Ile Gly Ala Thr
 660 665 670
 Pro Phe Ile Ser Ile Leu Lys Asp Leu Leu Asn Asn Ile Lys Ser Asn
 675 680 685
 Glu Glu Val Glu Ser Ile His Gly Ser Glu Ile Gly Ser Phe Lys Asn
 690 695 700
 Asn Gly Pro Gly Arg Ala Tyr Phe Tyr Trp Val Thr Arg Glu Gln Gly
 705 710 715 720
 Ser Phe Glu Trp Phe Lys Gly Val Met Asn Asp Val Ala Glu Ser Asp
 725 730 735
 His Asn Asn Ile Ile Glu Met His Asn Tyr Leu Thr Ser Val Tyr Glu

740	745	750													
Glu	Gly	Asp	Ala	Arg	Ser	Ala	Leu	Ile	Ala	Met	Val	Gln	Ser	Leu	Gln
755							760						765		
His	Ala	Lys	Asn	Gly	Val	Asp	Ile	Val	Ser	Gly	Ser	Arg	Ile	Arg	Thr
770							775						780		
His	Phe	Ala	Arg	Pro	Asn	Trp	Arg	Lys	Val	Phe	Ser	Asp	Leu	Ala	Asn
785							790						795		800
Ala	His	Lys	Asn	Ser	Arg	Ile	Gly	Val	Phe	Tyr	Cys	Gly	Ser	Pro	Thr
							805						810		815
Leu	Thr	Lys	Gln	Leu	Lys	Asp	Leu	Ser	Lys	Glu	Phe	Ser	Gln	Thr	Thr
							820						825		830
Thr	Thr	Arg	Phe	His	Phe	His	Lys	Glu	Asn	Phe					
							835						840		

<210> 19
<211> 2604
<212> DNA
<213> *Arabidopsis thaliana*

<220>
<221> CDS
<222> (1)...(2601)
<223> coding for NADPH oxidase

<400> 19																
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Met	Ser	Arg	Val	Ser	Phe	Glu	Val	Ser	Gly	Gly	Tyr	His	Ser	Asp	Ala	
1					5				10					15		
gaa	gcc	gga	aac	agc	gga	cca	atg	agc	ggt	ggt	caa	tta	cca	ccg	atc	96
Glu	Ala	Gly	Asn	Ser	Gly	Pro	Met	Ser	Gly	Gly	Gln	Leu	Pro	Pro	Ile	
							20				25			30		
tat	aaa	aaa	ccg	ggg	aac	tcc	aga	tcc	act	gct	gag	aac	agt	cag	aga	144
Tyr	Lys	Lys	Pro	Gly	Asn	Ser	Arg	Phe	Thr	Ala	Glu	Asn	Ser	Gln	Arg	
							35				40			45		
aca	cgt	acg	gca	cca	tac	gtg	gac	ctc	acg	gta	gat	gta	caa	gac	gat	192
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Glu	Ser	Pro	Glu	Leu	Thr	Leu	Leu	Lys	Arg	Asn	Arg	Leu	Glu	Lys	Lys	
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Leu	Thr	Ser	Val	Ser	Gly	Gly	Ile	Gly	Gly	Arg	Lys	Pro	Pro	Arg	Pro	
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Ala	Lys	Leu	Asp	Arg	Thr	Lys	Ser	Ala	Ala	Ser	Gln	Ala	Leu	Lys	Gly	
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Glu	Lys	Arg	Phe	Asn	Gln	Ile	Thr	Ala	Thr	Thr	Gly	Gly	Leu	Leu	Leu	
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cg	aca	aag	t	tc	gg	tt	g	aa	t	g	at	cc	t	tt	gt	576
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Leu Glu Leu Phe Asp Ala Leu Ala Arg Arg Arg Asn Ile Thr Gly Glu	
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Gln Ser Phe Asp Ser Arg Leu Lys Thr Phe Asp Met Val Asp Lys	
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Leu Glu Thr Leu Leu Gln Ala Ala Thr Gln Ser Val Ile Thr Ser	
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Thr Gly Glu Arg Lys Asn Leu Ser His Met Met Ser Gln Arg Leu Lys	
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Pro Thr Phe Asn Arg Asn Pro Leu Lys Arg Trp Tyr Arg Gly Leu Arg	
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Phe Phe Leu Leu Asp Asn Trp Gln Arg Cys Trp Val Ile Val Leu Trp	
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Val Cys Arg Asn Thr Ile Thr Trp Leu Arg Asn Lys Thr Arg Leu Gly	
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Cys Asp Phe Pro Arg Leu Leu His Ala Thr Pro Glu Ala Tyr Arg Pro	
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Asn Tyr Leu Pro Gly Pro Leu Lys Lys Leu Ala Ser Phe Asn Ala Phe	
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Leu Lys Phe Ile Ser Lys Thr Asp Gly Gly Ala Gly Trp Ser Ala Val			
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Glu Lys Arg Phe Asn Gln Ile Thr Ala Thr Thr Gly Gly Leu Leu Leu			
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Arg Thr Lys Phe Gly Glu Cys Ile Gly Met Thr Ser Lys Asp Phe Ala			
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Val Ile Asp Gly Asp Gln Leu Lys Glu Phe Trp Glu Gln Ile Asn Asp			
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Phe Ile Val Met Ala Ile Leu Phe Thr Tyr Lys Tyr Ile Gln Tyr Arg			
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Arg Ser Pro Val Tyr Pro Val Met Gly Asp Cys Val Cys Met Ala Lys			
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Gly Ala Ala Glu Thr Val Lys Leu Asn Met Ala Leu Ile Leu Leu Pro			
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Val Cys Arg Asn Thr Ile Thr Trp Leu Arg Asn Lys Thr Arg Leu Gly			

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Cys Asp Phe Pro Arg Leu Leu His Ala Thr Pro Glu Ala Tyr Arg Pro			
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Trp Tyr Thr His His Leu Phe Val Ile Val Tyr Ile Leu Leu Val Ala			
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His Gly Tyr Tyr Leu Tyr Leu Thr Arg Asp Trp His Asn Lys Thr Thr			
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Trp Met Tyr Leu Val Val Pro Val Val Leu Tyr Ala Cys Glu Arg Leu			
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Asn Phe Lys Tyr Lys Ser Gly Gln Tyr Met Phe Val Asn Cys Ala Ala			
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Val Ser Pro Phe Glu Trp His Pro Phe Ser Ile Thr Ser Ala Pro Gln			
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Asp Asp Tyr Leu Ser Val His Ile Arg Val Leu Gly Asp Trp Thr Arg			
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Val Ser Gly Leu Leu Arg Ala Asp Met Leu His Gly Ala Asn Asn Pro			
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Asp Phe Pro Lys Val Leu Ile Asp Gly Pro Tyr Gly Ala Pro Ala Gln			
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Asp Tyr Lys Lys Tyr Glu Val Val Leu Leu Val Gly Leu Gly Ile Gly			
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Ala Lys Glu Gln Ala Gln Leu Asn Arg Met Glu Asn Gly Thr Ser Glu			
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Pro Gln Arg Ser Lys Lys Glu Ser Phe Arg Thr Arg Arg Ala Tyr Phe			
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Tyr Trp Val Thr Arg Glu Gln Gly Ser Phe Asp Trp Phe Lys Asn Ile			
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Met Asn Glu Val Ala Glu Arg Asp Ala Asn Arg Val Ile Glu Met His			
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Asn Tyr Cys Thr Ser Val Tyr Glu Glu Gly Asp Ala Arg Ser Ala Leu			
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Ile His Met Leu Gln Ser Leu Asn His Ala Lys Asn Gly Val Asp Ile			
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Val Ser Gly Thr Arg Val Met Ser His Phe Ala Lys Pro Asn Trp Arg			
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Val Phe Tyr Cys Gly Ala Pro Ala Leu Thr Lys Glu Leu Arg His Leu			
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Tyr	Tyr	Thr	Ser	Glu	Ser	Pro	Tyr	Asn	Arg	Gly	Ser	Ser	Ala	Asn	Val		
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Ala	Thr	Thr	Ser	Asn	Tyr	Tyr	Gly	Glu	Asp	Glu	Pro	Tyr	Val	Glu	Ile		
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Thr	Leu	Asp	Ile	His	Asp	Asp	Ser	Val	Ser	Val	Tyr	Gly	Leu	Lys	Ser		
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tct	tct	gtt	tcc	acc	gga	ata	aca	cga	gtt	gct	tct	tct	gtt	tct	tcg		336
Ser	Ser	Val	Ser	Thr	Gly	Ile	Thr	Arg	Val	Ala	Ser	Ser	Val	Ser	Ser		
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Ser	Ser	Ala	Arg	Lys	Pro	Pro	Arg	Pro	Gln	Leu	Ala	Lys	Leu	Arg	Arg		
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Val	Met	Thr	Met	Thr	Asn	Asn	Gly	Leu	Leu	His	Arg	Ser	Arg	Phe	Gly		
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Glu	Cys	Ile	Gly	Met	Lys	Ser	Thr	Glu	Phe	Ala	Leu	Ala	Leu	Phe	Asp		
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Glu	Leu	Lys	Glu	Phe	Trp	Lys	Gln	Ile	Thr	Asp	Gln	Asp	Phe	Asp	Ser		
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Ile Met Glu Glu Leu Asp Pro Tyr His Tyr Gly Tyr Ile Met Ile Glu			
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Asn Leu Glu Ile Leu Leu Leu Gln Ala Pro Met Gln Asp Val Arg Asp			
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Gly Glu Ser Lys Lys Leu Ser Lys Met Leu Ser Gln Asn Leu Met Val			
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Pro Gln Ser Arg Asn Leu Gly Ala Arg Phe Cys Arg Gly Met Lys Tyr			
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355	360	365	
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Arg Ser Ala Tyr Glu Val Met Gly Val Cys Val Cys Ile Ala Lys Gly			
370	375	380	
gct gca gag acg ctt aaa cta aac atg gct atg att ttg tta cca gtt			1200
Ala Ala Glu Thr Leu Lys Leu Asn Met Ala Met Ile Leu Leu Pro Val			
385	390	395	400
tgt agg aac acc atc act tgg ctg cgg acc aaa acc aag tta agt gct			1248
Cys Arg Asn Thr Ile Thr Trp Leu Arg Thr Lys Thr Lys Leu Ser Ala			
405	410	415	
att gtt cct ttc gat gac agc ctc aat ttt cac aag gtc ata gct ata			1296
Ile Val Pro Phe Asp Asp Ser Leu Asn Phe His Lys Val Ile Ala Ile			
420	425	430	
gga att tca gtt gga gtt gga atc cat gct aca tct cac tta gca tgt			1344
Gly Ile Ser Val Gly Val Gly Ile His Ala Thr Ser His Leu Ala Cys			
435	440	445	
gat ttc ccc cga ctg ata gct gca gac gaa gat cag tat gag cca atg			1392
Asp Phe Pro Arg Leu Ile Ala Ala Asp Glu Asp Gln Tyr Glu Pro Met			
450	455	460	
gag aag tat ttt ggg cca cag aca aag aga tat ttg gac ttt gtt caa			1440
Glu Lys Tyr Phe Gly Pro Gln Thr Lys Arg Tyr Leu Asp Phe Val Gln			
465	470	475	480
tcg gta gaa gga gtt acc ggg att gga atg gtt gta cta atg acc ata			1488
Ser Val Glu Gly Val Thr Gly Ile Gly Met Val Val Leu Met Thr Ile			
485	490	495	
gcc ttt aca ttg gct aca aca tgg ttc aga cgt aat aag ctc aac ctt			1536
Ala Phe Thr Leu Ala Thr Trp Phe Arg Arg Asn Lys Leu Asn Leu			
500	505	510	
cct gga cca ctg aag aaa ata aca ggc ttc aat gcc ttc tgg tac tct			1584
Pro Gly Pro Leu Lys Lys Ile Thr Gly Phe Asn Ala Phe Trp Tyr Ser			
515	520	525	
cac cac tta ttt gtt atc gtc tac tgg ctt gtc gtt cat gga ttc			1632
His His Leu Phe Val Ile Val Tyr Ser Leu Leu Val Val His Gly Phe			
530	535	540	
tac gta tac ctc atc atc gag cca tgg tac aag aaa acg aca tgg atg			1680
Tyr Val Tyr Leu Ile Ile Glu Pro Trp Tyr Lys Lys Thr Thr Trp Met			
545	550	555	560
tat ttg atg gta ccg gtg gtt ctt tac ttg tgt gaa agg ctg att cgt			1728
Tyr Leu Met Val Pro Val Val Leu Tyr Leu Cys Glu Arg Leu Ile Arg			
565	570	575	

gca ttc agg tca agc gtc gag gct gtt tca gtg cta aag gtt gct gtg	1776
Ala Phe Arg Ser Ser Val Glu Ala Val Ser Val Leu Lys Val Ala Val	
580 585 590	
tta cca ggg aat gtc ttg tcg ctt cac ttg tca aga cca agc aac ttc	1824
Leu Pro Gly Asn Val Leu Ser Leu His Leu Ser Arg Pro Ser Asn Phe	
595 600 605	
aga tac aag agt gga caa tac atg tat ctc aac tgg gca gtt tct	1872
Arg Tyr Lys Ser Gly Gln Tyr Met Tyr Leu Asn Cys Ser Ala Val Ser	
610 615 620	
aca tta gaa tgg cat cca ttc tca att acc tca gct cca gga gat gac	1920
Thr Leu Glu Trp His Pro Phe Ser Ile Thr Ser Ala Pro Gly Asp Asp	
625 630 635 640	
tac ctc agt gtc cac atc agg gtt tta gga gac tgg act aag caa tta	1968
Tyr Leu Ser Val His Ile Arg Val Leu Gly Asp Trp Thr Lys Gln Leu	
645 650 655	
aga tca tta ttc tct gag gtg tgc aag cca cgc cct cct gat gaa cac	2016
Arg Ser Leu Phe Ser Glu Val Cys Lys Pro Arg Pro Pro Asp Glu His	
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aga ctg aac aga gcc gac tcg aag cac tgg gat tac atc cct gac ttt	2064
Arg Leu Asn Arg Ala Asp Ser Lys His Trp Asp Tyr Ile Pro Asp Phe	
675 680 685	
cca aga atc cta att gat ggt cca tat gga gca cca gca caa gac tac	2112
Pro Arg Ile Leu Ile Asp Gly Pro Tyr Gly Ala Pro Ala Gln Asp Tyr	
690 695 700	
aag aag ttt gaa gtt gtt ctg cta gtg ggt cta gga atc ggt gcc act	2160
Lys Lys Phe Glu Val Val Leu Leu Val Gly Leu Gly Ile Gly Ala Thr	
705 710 715 720	
ccg atg atc agc ata gtg agt gac ata atc aat aac ttg aaa ggc gtg	2208
Pro Met Ile Ser Ile Val Ser Asp Ile Ile Asn Asn Leu Lys Gly Val	
725 730 735	
gaa gaa ggc agt aac cga aga cag tca ccg atc cat aat atg gtc aca	2256
Glu Glu Gly Ser Asn Arg Arg Gln Ser Pro Ile His Asn Met Val Thr	
740 745 750	
cct cct gtt tct cca tca aga aaa agt gag acg ttc aga acc aag aga	2304
Pro Pro Val Ser Pro Ser Arg Lys Ser Glu Thr Phe Arg Thr Lys Arg	
755 760 765	
gct tac ttc tac tgg gtc aca aga gag cag ggg tcg ttt gac tgg ttc	2352
Ala Tyr Phe Tyr Trp Val Thr Arg Glu Gln Gly Ser Phe Asp Trp Phe	
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aag aac gtg atg gac gaa gtg act gaa aca gac cgc aaa aac gta att	2400
Lys Asn Val Met Asp Glu Val Thr Glu Thr Asp Arg Lys Asn Val Ile	
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gag ctg cat aat tac tgc acc agc gtt tac gag gaa ggg gac gcg agg	2448
Glu Leu His Asn Tyr Cys Thr Ser Val Tyr Glu Glu Gly Asp Ala Arg	
805 810 815	
tct gca ctt atc acg atg ctc cag tct cta aac cat gct aag cat gga	2496
Ser Ala Leu Ile Thr Met Leu Gln Ser Leu Asn His Ala Lys His Gly	
820 825 830	
gtg gac gtt gtg tca gga aca cgt gtc atg tcc cat ttc gct agg cca	2544
Val Asp Val Val Ser Gly Thr Arg Val Met Ser His Phe Ala Arg Pro	
835 840 845	
aac tgg aga agc gtt ttc aaa agg atc gct gtg aat cat cct aag act	2592
Asn Trp Arg Ser Val Phe Lys Arg Ile Ala Val Asn His Pro Lys Thr	
850 855 860	
aga gtc gga gtg ttt tat tgt gga gca gct ggg tta gtg aaa gag tta	2640
Arg Val Gly Val Phe Tyr Cys Gly Ala Ala Gly Leu Val Lys Glu Leu	
865 870 875 880	
cga cac tta tca ctg gat ttc tct cat aag acc tcc acc aag ttc atc	2688
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Ala Thr Thr Ser Asn Tyr Tyr Gly Glu Asp Glu Pro Tyr Val Glu Ile
35 40 45
Thr Leu Asp Ile His Asp Asp Ser Val Ser Val Tyr Gly Leu Lys Ser
50 55 60
Pro Asn His Arg Gly Ala Gly Ser Asn Tyr Glu Asp Gln Ser Leu Leu
65 70 75 80
Arg Gln Gly Arg Ser Gly Arg Ser Asn Ser Val Leu Lys Arg Leu Ala
85 90 95
Ser Ser Val Ser Thr Gly Ile Thr Arg Val Ala Ser Ser Val Ser Ser
100 105 110
Ser Ser Ala Arg Lys Pro Pro Arg Pro Gln Leu Ala Lys Leu Arg Arg
115 120 125
Ser Lys Ser Arg Ala Glu Leu Ala Leu Lys Gly Leu Lys Phe Ile Thr
130 135 140
Lys Thr Asp Gly Val Thr Gly Trp Pro Glu Val Glu Lys Arg Phe Tyr
145 150 155 160
Val Met Thr Met Thr Asn Asn Gly Leu Leu His Arg Ser Arg Phe Gly
165 170 175
Glu Cys Ile Gly Met Lys Ser Thr Glu Phe Ala Leu Ala Leu Phe Asp
180 185 190
Ala Leu Ala Arg Arg Glu Asn Val Ser Gly Asp Ser Ile Asn Met Asn
195 200 205
Glu Leu Lys Glu Phe Trp Lys Gln Ile Thr Asp Gln Asp Phe Asp Ser
210 215 220
Arg Leu Arg Thr Phe Phe Ala Met Val Asp Lys Asp Ser Asp Gly Arg
225 230 235 240
Leu Asn Glu Ala Glu Val Arg Glu Ile Ile Thr Leu Ser Ala Ser Ala
245 250 255
Asn Glu Leu Asp Asn Ile Arg Arg Gln Ala Asp Glu Tyr Ala Ala Leu
260 265 270
Ile Met Glu Glu Leu Asp Pro Tyr His Tyr Gly Tyr Ile Met Ile Glu
275 280 285
Asn Leu Glu Ile Leu Leu Gln Ala Pro Met Gln Asp Val Arg Asp
290 295 300
Gly Glu Ser Lys Lys Leu Ser Lys Met Leu Ser Gln Asn Leu Met Val
305 310 315 320
Pro Gln Ser Arg Asn Leu Gly Ala Arg Phe Cys Arg Gly Met Lys Tyr
325 330 335
Phe Leu Phe Asp Asn Trp Lys Arg Val Trp Val Met Ala Leu Trp Ile
340 345 350
Gly Ala Met Ala Gly Leu Phe Thr Trp Lys Phe Met Glu Tyr Arg Lys
355 360 365
Arg Ser Ala Tyr Glu Val Met Gly Val Cys Val Cys Ile Ala Lys Gly
370 375 380
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385 390 395 400
Cys Arg Asn Thr Ile Thr Trp Leu Arg Thr Lys Thr Lys Leu Ser Ala
405 410 415

Ile Val Pro Phe Asp Asp Ser Leu Asn Phe His Lys Val Ile Ala Ile
 420 425 430
 Gly Ile Ser Val Gly Val Gly Ile His Ala Thr Ser His Leu Ala Cys
 435 440 445
 Asp Phe Pro Arg Leu Ile Ala Ala Asp Glu Asp Gln Tyr Glu Pro Met
 450 455 460
 Glu Lys Tyr Phe Gly Pro Gln Thr Lys Arg Tyr Leu Asp Phe Val Gln
 465 470 475 480
 Ser Val Glu Gly Val Thr Gly Ile Gly Met Val Val Leu Met Thr Ile
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 Pro Gly Pro Leu Lys Lys Ile Thr Gly Phe Asn Ala Phe Trp Tyr Ser
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 565 570 575
 Ala Phe Arg Ser Ser Val Glu Ala Val Ser Val Leu Lys Val Ala Val
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 Leu Pro Gly Asn Val Leu Ser Leu His Leu Ser Arg Pro Ser Asn Phe
 595 600 605
 Arg Tyr Lys Ser Gly Gln Tyr Met Tyr Leu Asn Cys Ser Ala Val Ser
 610 615 620
 Thr Leu Glu Trp His Pro Phe Ser Ile Thr Ser Ala Pro Gly Asp Asp
 625 630 635 640
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 645 650 655
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 660 665 670
 Arg Leu Asn Arg Ala Asp Ser Lys His Trp Asp Tyr Ile Pro Asp Phe
 675 680 685
 Pro Arg Ile Leu Ile Asp Gly Pro Tyr Gly Ala Pro Ala Gln Asp Tyr
 690 695 700
 Lys Lys Phe Glu Val Val Leu Leu Val Gly Leu Gly Ile Gly Ala Thr
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 Pro Met Ile Ser Ile Val Ser Asp Ile Ile Asn Asn Leu Lys Gly Val
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 Glu Glu Gly Ser Asn Arg Arg Gln Ser Pro Ile His Asn Met Val Thr
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oligonucleotide primer

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